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A STUDY OF EMISSIONS FROM LIGHT DUTY VEHICLES IN DENVER, HOUSTON AND CHICAGO, FISCAL YEAR 1972

Douglas R. Liljedahl

Automotive Testing Laboratories

Prepared for:

Environmental Protection Agency

July 1973

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The overall objective of the program was to provide vehicle emission data to be used to establish and predict vehicle emission source data on a metropolitan and nation-wide basis. A laboratory study was conducted on 1966 through 1972 model-year vehicles operating in three U. S. metropolitan areas, Denver, Houston, and Chicago. The three cities study was a part of a larger study involving emission testing in six U. S. cities. Five-hundred and ten vehicles, one-hundred and seventy in each city, were tested to determine exhaust hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen emissions. A subsample of twenty of the 1972 model-year vehicles in the Denver area were also tested for evaporative hydrocarbon losses. Exhaust emission tests were conducted according to the 1975 Federal Test Procedures on vehicles as received. Evaporative emission tests were conducted using a slightly modified version of the Society of Automotive Engineers, SAE J171 SHED procedure. The test sample requirements as established are explained. Test vehicle selection and procurement plans are described. The vehicle and equipment preparation, performance of emission tests and engine diagnostic procedures are described. The test results are presented in detail in the appendices. Results are expressed in grams/mile.

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a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air pollution	Nitrogen oxides	Constant volume sampler	
Automobiles	Exhaust emissions	SHED (Sealed Housing for Evaporative Determination)	13B 7B
Calibrating	Spectrophotometer		
Tests	Data	1972 Federal Test procedure	
Test facilities		1975 Federal Test procedure	
Hydrocarbons		SAE J171 SHED procedure	
Carbon monoxide		Evaporative losses	
Carbon dioxide		Denver, Houston, Chicago	

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Fiscal Year 1972

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ABSTRACT

A laboratory study was conducted on 1966 through 1972 model-year vehicles operating in three U.S. metropolitan areas, Denver, Houston and Chicago. The three cities study was a part of a larger study involving emission testing in six U.S. cities. Five-hundred and ten vehicles, one-hundred and seventy in each city, were tested to determine exhaust hydrocarbon, carbon monoxide, carbon dioxide and oxides of nitrogen emissions. A subsample of twenty of the 1972 model-year vehicles in the Denver area were also tested for evaporative hydrocarbon losses. Exhaust emission tests were conducted according to the 1975 Federal Test Procedures on vehicles as received. Evaporative emission tests were conducted using a slightly modified version of the Society of Automotive Engineers, SAE J171 SHED procedure. With respect to vehicle model-years, HC and CO emissions tend to decrease in the more current model-years while CO_2 and NO_x emissions tend to increase. Exhaust HC and CO emissions were found to be significantly higher in Denver, a high altitude city, than HC and CO emissions in the other two cities at lower elevation, while NO_x emissions in Denver were significantly lower. Similarly, HC and CO emissions in Houston were higher than HC and CO emissions in Chicago, assumedly resulting from the relatively severe winter climate experienced in Chicago and the accompanying requirement for cold weather engine and vehicle maintenance. By manufacturer, the larger domestic made vehicles yielded higher HC, CO, CO_2 and NO_x emissions than the smaller foreign made vehicles. With reference to the 1972 Federal Exhaust Emission Standards, 3% of the 1972 model-year vehicles tested in Denver were found to emit both HC and CO below Federal Standards. In Houston, 34% of the 1972 model-year vehicles were found to emit both HC and CO below Federal Standards. In Chicago, 51% of the 1972 model-year vehicles tested were found to emit both HC and CO below 1972 Federal Standards. With respect to the sample of 170 vehicles tested at each site; less than 1% of all vehicles tested in Denver emitted both HC

and CO below 1972 Federal Standards, about 13% of all vehicles tested in Houston were below 1972 Standards for HC and CO. In Chicago, about 16% of all vehicles tested were found to emit below 1972 Federal HC and CO Standards.

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1. INTRODUCTION

Since motor vehicles were initially found to contribute substantially to air pollution problems in the United States, a great deal of effort and resources have been directed toward finding solutions to these problems. In recent years, as a result of the combined efforts of the U.S. Environmental Protection Agency and the automobile industry, great strides have been made toward achieving this end. Motor vehicles are now being produced at generally lower emission levels in each successive model year. In spite of these efforts, however, motor vehicles are still considered a major source of atmospheric contamination. Factors which singularly tend to cause emission levels to increase, in combination produce emissions at levels which continue to remain undesirably high. Furthermore, these same factors which are relatively easy to deal with on a regional level, become exceedingly complex when considered on a national basis.

The United States Environmental Protection Agency (EPA), by authority of the Clean Air Act, is responsible for the prevention and control of air pollution. One of the responsibilities of the EPA as provided by the Act is the conduct and promotion of surveys and studies of the causes of air pollution. In this regard, the Surveillance Branch of the EPA, with offices in Ann Arbor, Michigan, is responsible for the development of data to enable calculation of average emission factors for motor vehicles. These factors are utilized within EPA by the National Air Data Branch and the Land Use Planning Branch for calculation and projections of nation-wide and metropolitan area motor vehicle emissions and for the development of transportation control and emergency episode procedures.

The Environmental Protection Agency, in carrying out its programs, contracted with Automotive Testing Laboratories, Inc. (ATL), to provide emission test data from vehicles operating in three U.S. metropolitan areas. The three cities study was part of a larger program to study emissions in six cities. This report describes the conduct of the three cities study and presents the results of testing in the Denver, Houston and Chicago areas.

2. TECHNICAL DISCUSSION

2.1 PROGRAM OBJECTIVES

The overall objective of the program was to provide vehicle emission data to be used to establish and predict vehicle emission source data on a metropolitan and nation-wide basis. These data are to be utilized to establish average emission factors from which emission source inventories, vehicle emission control strategies and emergency episode pollution abatement procedures will be developed.

2.2 PROGRAM DESIGN

In order to accomplish the objectives of the study, the EPA specified that emission tests be conducted on a range of vehicles from model-years 1966 through 1972 inclusive. Exhaust emission tests were to be performed on all vehicles of a specified sample in six disparate metropolitan areas of the United States. Additionally, evaporative emission tests were to be performed on 1972 model-year vehicles operating in the Denver and Los Angeles areas. As indicated, this report covers activities relative to the Denver, Houston and Chicago areas.

After consideration of the various factors affecting emissions from motor vehicles, the requirement for testing in diverse sites and by model-year becomes obvious. Motor vehicle emissions are affected directly by topography and indirectly by climate, and by engine and component design and wear. Emissions from vehicles operating in the Denver area, with respect to topography, for example, are significantly higher for exhaust hydrocarbon and carbon monoxide emissions than emissions from vehicles operating in cities at lower elevations. Similarly, emissions from 1966 model-year vehicles sold without factory installed control systems are known to be higher than emissions from recent model-year vehicles equipped with control systems.

With specific reference to topography and climate relative to the populated areas designated for investigation; the Denver metropolitan area is situated at high elevation about one mile above sea-level and experiences distinct seasonal temperature and weather changes. The Chicago metropolitan area is similar to Denver in climate but is situated near sea-level in elevation. The Houston area is situated like Chicago near sea-level in elevation, but experiences a relatively mild climate the year around. Testing requirements in diverse areas were strengthened not only due to the direct influence of elevation on emissions but as a result of varying maintenance requirements and practices dictated by climatic conditions and by driving habits and mileage accumulation resulting from urbanization factors.

In addition to those discussed above, other considerations required attention in support of program objectives. Vehicle model years specified by the EPA for investigation were the majority of vehicles in use and are vehicles which are expected to remain as pollution sources on the nations streets and highways for some time to come. Additionally, an important item for consideration was that of matching the test vehicle sample to appearance in the nation-wide vehicle population by make, engine displacement and other factors thought to be significant with respect to emission levels. The ratio of vehicles by model-year was based on vehicle miles traveled as reported by the National Academy of Science.

The proper conduct of any program is dependent to a large extent on the accumulation, processing and reporting of data. To ensure the accumulation of accurate data and to minimize variables associated with instrument and procedural operations in time, and from site to site, it was important that all aspects of the program were standardized. Elaborate calibration, cross-check, and operational procedures were designed, maintained and checked at regular intervals. Standardized data reporting procedures and flow routines were established and quality audits which checked and verified each and every data point were performed. In consideration of the impact the study was to have on subsequent pollution control and abatement activities, the significance of testing procedures to represent the contribution of vehicle emissions to atmospheric loading was recognized. Exhaust and evaporative emission testing procedures and equipment which best represented and simulated emissions in metropolitan areas were required. The constant volume sampling technique by the 1975 Federal Test Procedure was utilized for determination of exhaust emissions. The Sealed Housing for Evaporative Determinations (SHED) was applied for measurement of evaporative hydrocarbon losses in general accordance with SAE Technical Report J171.

In short, rigid test sample requirements were established, individual vehicles were selected by a carefully designed procurement and selection plan, accurate testing procedures and calibrations were established and maintained, and all data was subjected to rigid quality inspection and verification routines to ensure the overall accuracy and validity of the study.

2.3 TEST VEHICLE PROCUREMENT

Several methods exist by which a test sample can be selected and procured. Theoretically a purely random method of selection will yield a sample which is representative of the greater population. However, with respect to this study, a purely random sample was neither desirable nor feasible due to several considerations. Regional vehicle marketing tactics and consumer requirements tend to bias a sample toward local conditions and secondly, access to the car population is limited. After careful consideration of program objectives and examination of factors affecting motor vehicle emissions, it was determined that some biasing of the sample was in order. The intent of the program was to provide emission data from a sample based on nation-wide vehicle registration data. In addition to selection by model-year, the EPA elected to test vehicles by make, engine displacement, transmission type and carburetion. The more representative makes and equipment combinations were specified. In the design of sample criteria, it was realized that for one reason or another, total compliance with sample specifications would be difficult to achieve within a reasonable amount of effort. A system of selection priorities was then established as follows:

1. Model-year
2. Make
3. Engine Displacement
4. Transmission
5. Carburetion

Selection criteria specified that the required number of vehicles be tested by Model-Year and Make. Absolute adherence to sample specifications was desirable. However, substitution of back-up vehicles was considered permissible if a vehicle meeting precise sample requirements could not be located. In order to produce vehicles meeting sample criteria, sample locating strategies were developed as shown in Figure 2.1 Vehicle Procurement Flow Diagram. Details of the selection and procurement process are as discussed below.

2.3.1 Test Vehicle Selection

Several private organizations assemble, process and compile national and local vehicle registration data. These data are stored in computer files and can be accessed by several methods to satisfy the randomized selection criteria designed into the study. ATL obtained lists of registered vehicles in the Denver, Houston and Chicago metropolitan areas through a local mailing and advertising firm, Hibbert/Laman. Registered vehicles were selected from files maintained by Postal Zip Code areas. Hibbert/Laman was required to supply lists by an nth name computer selection process from Zip Code areas adjacent to and surrounding laboratory test sites. It was stipulated that areas under consideration be within ten miles of the subject city limits.

Upon receipt of candidate test vehicle lists which were delivered in the form of gummed labels and computer tabulations, Hibbert/Laman printed materials, affixed address labels to materials, and stuffed envelopes. Materials were scheduled for mailing about two weeks in advance of anticipated test start-up. The two week interval provided

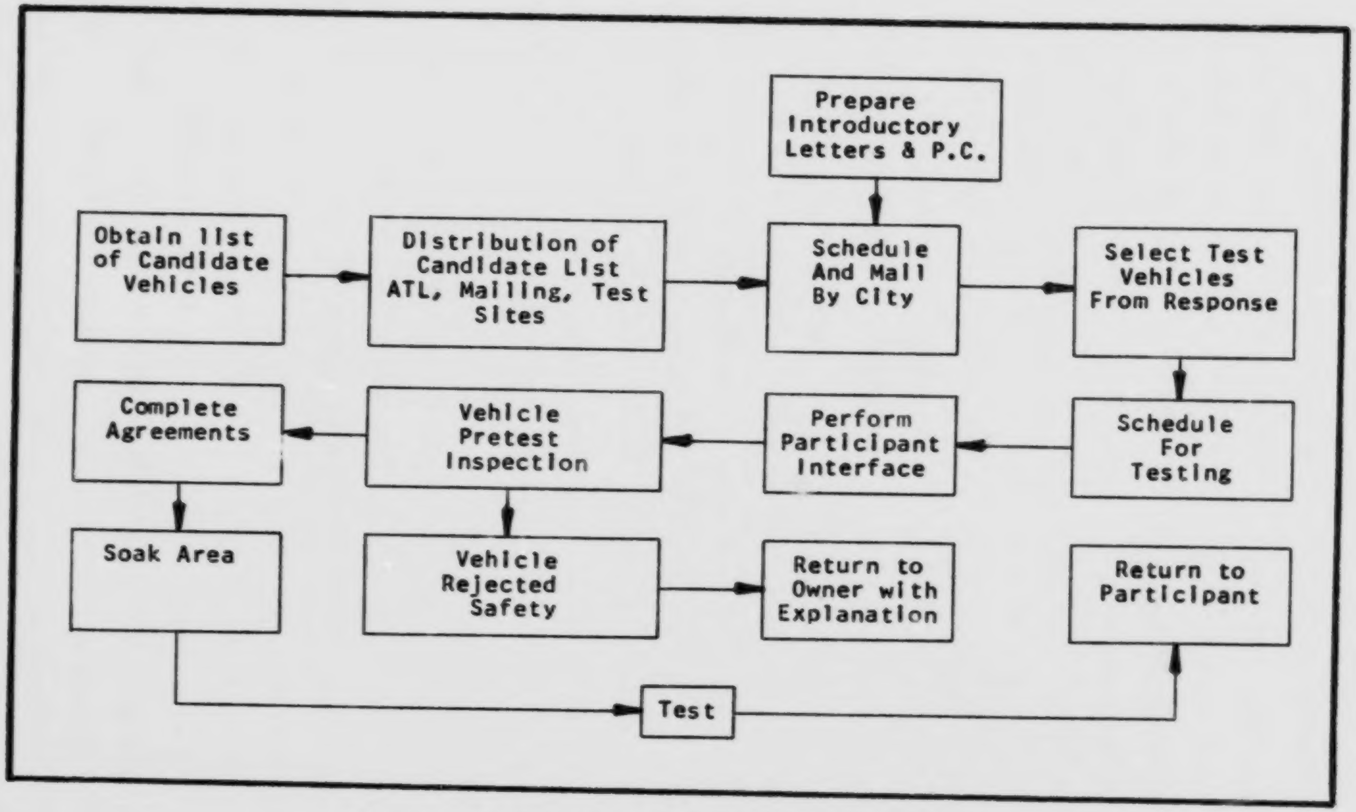
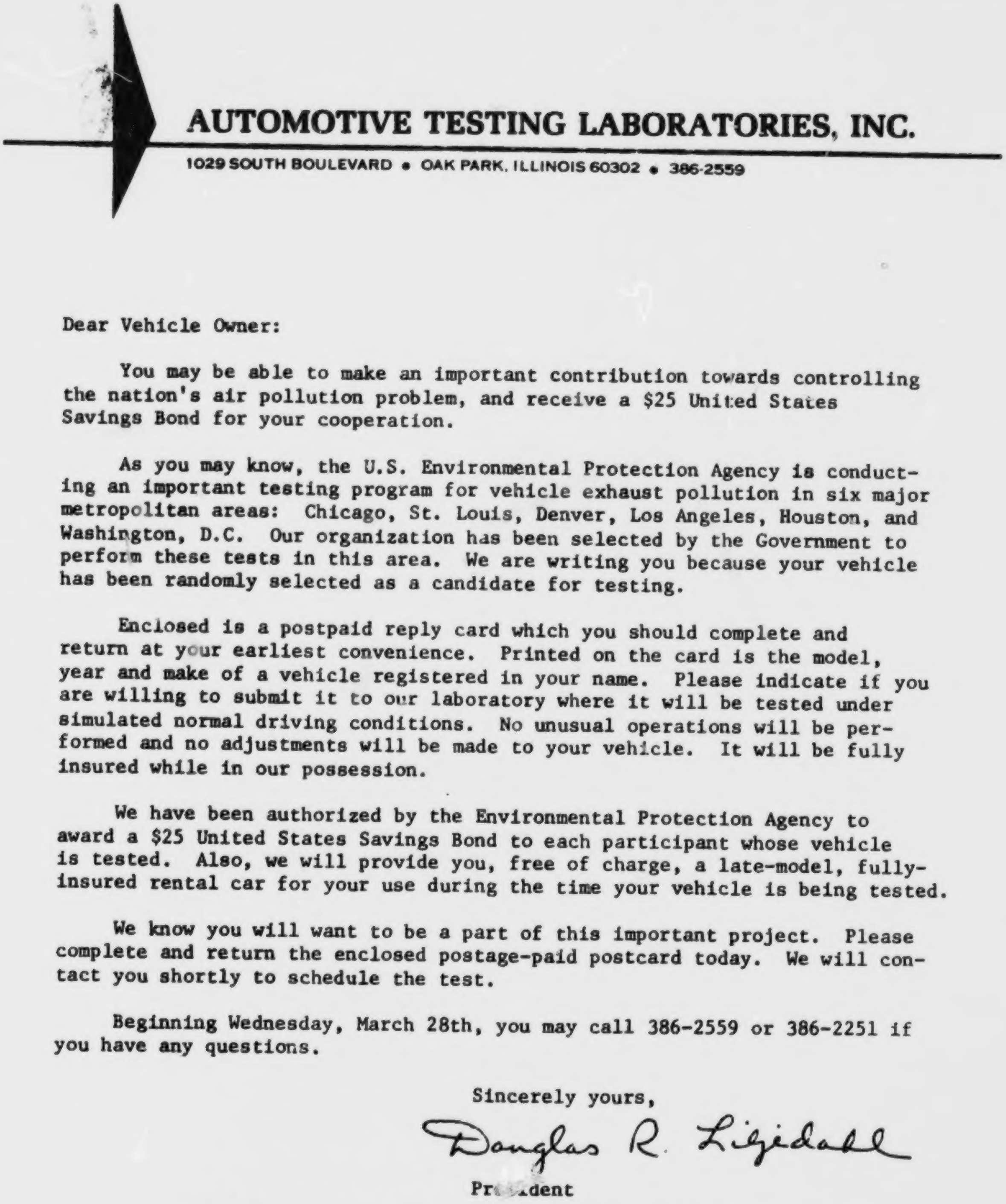

Prepare Introductory Letters & P.C.
Obtain list of Candidate Vehicles
Distribution of Candidate List ATL, Mailing, Test Sites
Schedule And Mail By City
Select Test Vehicles From Response
Complete Agreements
Vehicle Pretest Inspection
Perform Participant Interface
Schedule For Testing
Soak Area
Vehicle Rejected Safety
Return to Owner with Explanation
Return to Participant
Test

Figure 2.1, VEHICLE PROCUREMENT FLOW DIAGRAM sufficient time for the material to arrive at its destination, and for interested candidates to review, complete and forward required materials for receipt and processing by ATL. Figures 2.2, 2.3, and 2.4 are presented as samples to indicate the content of mailings.

In theory, this strategem should have produced the desired sample of vehicles. In actual practice, however, about 90 to 95 percent of vehicles required were obtained. Experience indicated that a doubling of initial mailings would not necessarily produce the entire sample required. In Denver, for example, mailings were sent to 2500 potential candidates. About 90% of the sample was obtained as a result of the Denver mailing. In Houston, a mailing went out to 5000 potential candidates. The mailing produced about 95% of the desired sample. This indicates that to produce an additional one-half of the hard-to-find vehicles, a doubling of initial mailings is required. Based on experience gained in Denver and Houston, it was believed that response to the mailings could be improved for the Chicago effort by employing another tactic. However, this did not prove to be the situation. Coincident with material mailings in Chicago, announcements were released to the news-media, local newspapers, radio stations, and television. News coverage was good, but failed to produce a significantly improved response.

As a result of the failure of mailings to supply the necessary test vehicles, other tactics were employed. In the Houston and Chicago phases of the study, the assistance of fraternal and religious organizations was enlisted. Vehicles procurred and tested as a result of this tactic represented about 30% of the vehicles tested at each site. In view of the bias known to exist with respect to regional vehicle buying and marketing characteristics, the benefits of this tactic are difficult to evaluate. Although the sample tested in Houston and Chicago fits the desired sample to a greater degree, the resulting improved fit may be a result of additions and improvements to mailing materials and improvements in candidate handling techniques and



AUTOMOTIVE TESTING LABORATORIES, INC.
1029 SOUTH BOULEVARD • OAK PARK, ILLINOIS 60302 • 386-2559

Dear Vehicle Owner:

You may be able to make an important contribution towards controlling the nation's air pollution problem, and receive a $25 United States Savings Bond for your cooperation.

As you may know, the U.S. Environmental Protection Agency is conducting an important testing program for vehicle exhaust pollution in six major metropolitan areas: Chicago, St. Louis, Denver, Los Angeles, Houston, and Washington, D.C. Our organization has been selected by the Government to perform these tests in this area. We are writing you because your vehicle has been randomly selected as a candidate for testing.

Enclosed is a postpaid reply card which you should complete and return at your earliest convenience. Printed on the card is the model, year and make of a vehicle registered in your name. Please indicate if you are willing to submit it to our laboratory where it will be tested under simulated normal driving conditions. No unusual operations will be performed and no adjustments will be made to your vehicle. It will be fully insured while in our possession.

We have been authorized by the Environmental Protection Agency to award a $25 United States Savings Bond to each participant whose vehicle is tested. Also, we will provide you, free of charge, a late-model, fully-insured rental car for your use during the time your vehicle is being tested.

We know you will want to be a part of this important project. Please complete and return the enclosed postage-paid postcard today. We will contact you shortly to schedule the test.

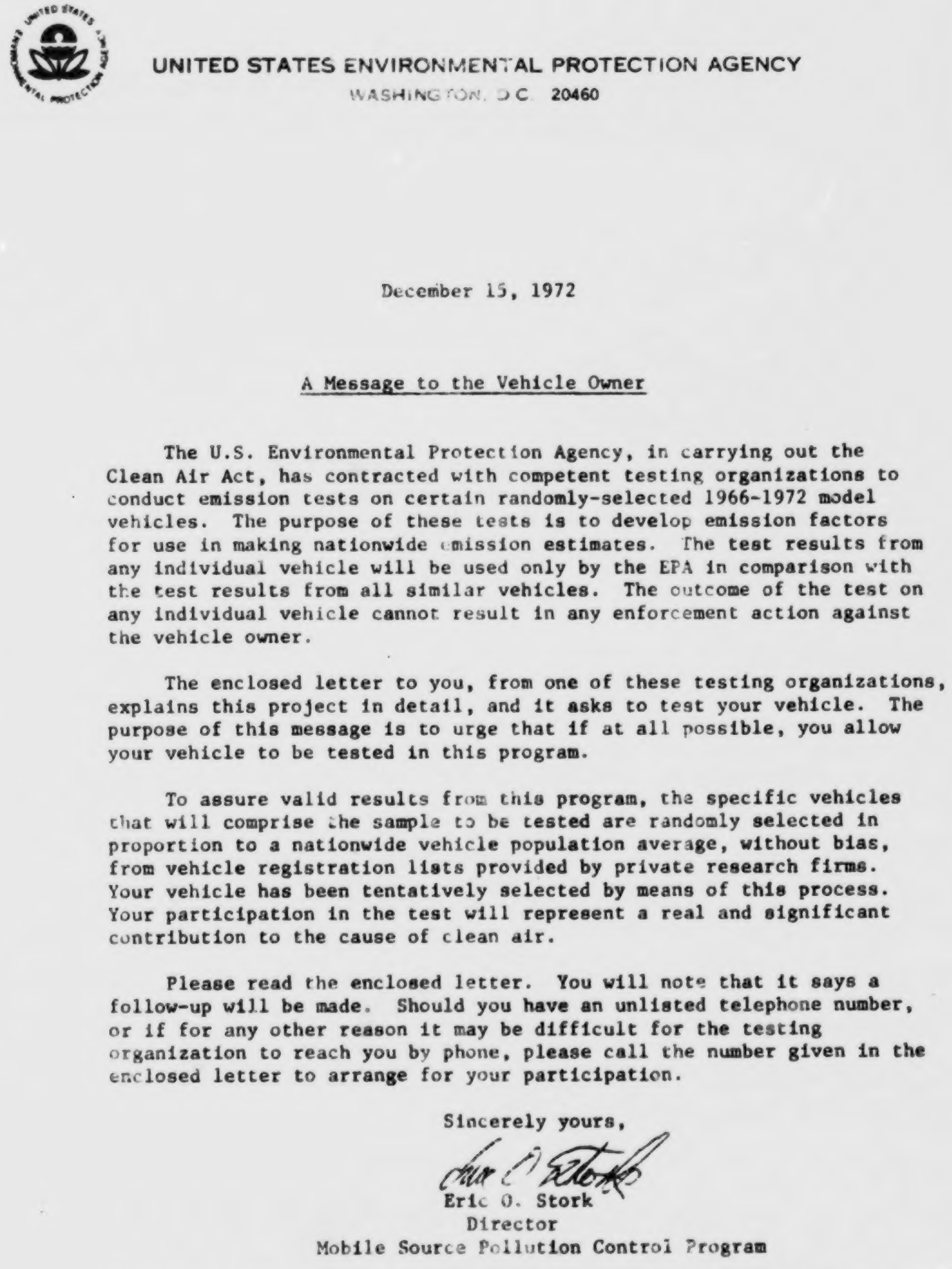
Beginning Wednesday, March 28th, you may call 386-2559 or 386-2251 if you have any questions.

Sincerely yours,

Douglas R. Liljedahl

President

Figure 2.2, SAMPLE OF ATL INTRODUCTORY LETTER



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

December 15, 1972

A Message to the Vehicle Owner

The U.S. Environmental Protection Agency, in carrying out the Clean Air Act, has contracted with competent testing organizations to conduct emission tests on certain randomly-selected 1966-1972 model vehicles. The purpose of these tests is to develop emission factors for use in making nationwide emission estimates. The test results from any individual vehicle will be used only by the EPA in comparison with the test results from all similar vehicles. The outcome of the test on any individual vehicle cannot result in any enforcement action against the vehicle owner.

The enclosed letter to you, from one of these testing organizations, explains this project in detail, and it asks to test your vehicle. The purpose of this message is to urge that if at all possible, you allow your vehicle to be tested in this program.

To assure valid results from this program, the specific vehicles that will comprise the sample to be tested are randomly selected in proportion to a nationwide vehicle population average, without bias, from vehicle registration lists provided by private research firms. Your vehicle has been tentatively selected by means of this process. Your participation in the test will represent a real and significant contribution to the cause of clean air.

Please read the enclosed letter. You will note that it says a follow-up will be made. Should you have an unlisted telephone number, or if for any other reason it may be difficult for the testing organization to reach you by phone, please call the number given in the enclosed letter to arrange for your participation.

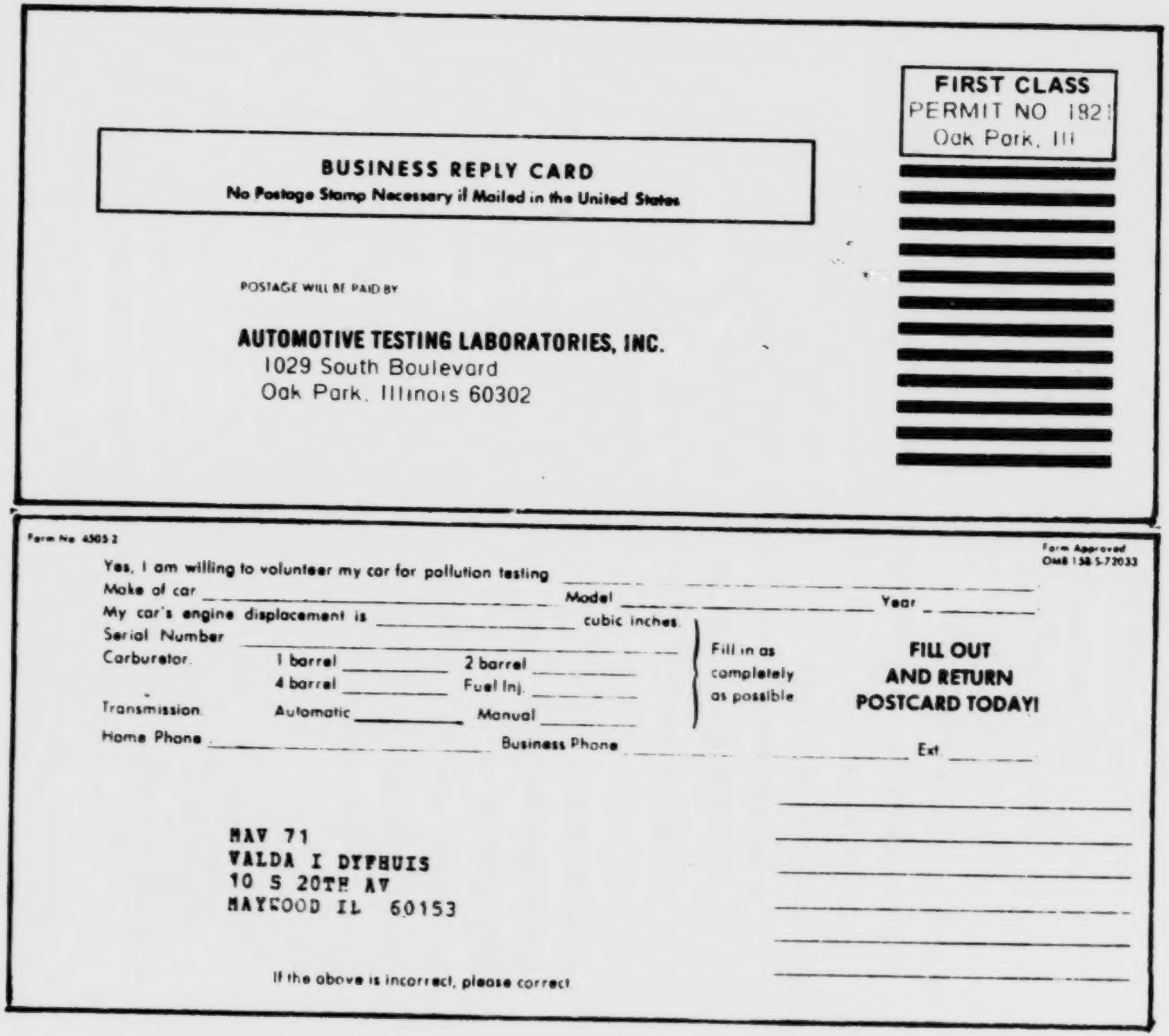
Sincerely yours,

Eric O. Stork

Eric O. Stork
Director
Mobile Source Pollution Control Program

Enclosure

Figure 2.3, SAMPLE OF EPA INTRODUCTORY LETTER



FIRST CLASS
PERMIT NO 1821
Oak Park, Ill

BUSINESS REPLY CARD
No Postage Stamp Necessary if Mailed in the United States

POSTAGE WILL BE PAID BY

AUTOMOTIVE TESTING LABORATORIES, INC.
1029 South Boulevard
Oak Park, Illinois 60302

Form No 4505 2

Form Approved
OMB 158-S-72033

Yes, I am willing to volunteer my car for pollution testing ________
Make of car ________ Model ________ Year ________
My car's engine displacement is ________ cubic inches.
Serial Number ________
Carburetor. 1 barrel ________ 2 barrel ________
4 barrel ________ Fuel Inj. ________
Transmission. Automatic ________ Manual ________
Home Phone ________ Business Phone ________ Ext ________

Fill in as completely as possible

FILL OUT AND RETURN POSTCARD TODAY!

MAV 71
VALDA I DYPHUIS
10 S 20TH AV
MAYWOOD IL 60153

If the above is incorrect, please correct

Figure 2.4, SAMPLE OF RETURN POST CARD

candidate awareness of local air pollution conditions. Figures 2.5 and 2.6 indicate the quality of the vehicle sample actually tested compared to the sample desired for each city. In order to locate the hard-to-find vehicles, other tactics were employed. Hard-to-find vehicles were finally obtained from car lots, new car dealership service files and by direct advertising.

Upon receipt of information on candidate test vehicles via returned post-cards, a candidate vehicle file was established by model-year, make, engine size, etc. Where cards were returned with incomplete information, a telephone call was made relative to the vehicle in question in an attempt to assist owners to more precisely define vehicles. Additional information was supplied owners with respect to engine identification, one of the more difficult vehicle parameters to identify. The owner was requested to consult his owners manual, emission system specification label affixed to the engine compartment, vehicle I.D. number, or engine I.D. number. After procurement personnel were sufficiently satisfied of the validity of candidate vehicle information files, vehicles in compliance with or closely adhering to the priority criteria discussed earlier, were scheduled for testing. Schedules were established in accordance with project requirements. Upon delivery of test vehicles to the laboratory, all vehicles were inspected for compliance with established or substitute criteria prior to acceptance.

2.3.2 Incentives

Experience has shown that response to public-oriented programs can be significantly improved through the offer of incentives. In the study described, incentives of a $25.00 U.S. Savings Bond and the loan of a late-model courtesy car was offered to encourage private car owner participation in the program. Subjective observations indicate incentives in this order are near optimum. Loan vehicles provided participants with transportation during the interval their vehicles were being prepared and tested, and the $25.00 Savings Bond provided

	Requested Sample	Number of Cars Tested		
Make		Chicago	Denver	Houston
AMC	5	5	5	5
BUICK	12	12	12	12
CADILLAC	4	4	4	4
CHEVROLET	39	39	39	39
CHRYSLER	4	4	4	4
DATSUN	2	2	2	2
DODGE	10	10	10	10
FORD	35	35	35	35
LINCOLN	1	1	1	1
MERCURY	7	7	7	7
OLDSMOBILE	11	11	11	11
OPEL	1	1	1	1
PLYMOUTH	12	12	12	12
PONTIAC	14	14	14	14
TOYOTA	3	3	3	3
VOLKSWAGEN	10	10	10	10
Model Year				
1966	17	17	17	17
1967	18	18	18	18
1968	21	21	21	21
1969	22	22	22	22
1970	27	27	27	27
1971	30	30	30	30
1972	35	35	35	35
Engine CID				
Less than 251	40	38	41	40
251-330	44	45	41	44
331-399	52	52	53	51
Greater than 399	34	35	35	35
Transmission				
Automatic	139	148	138	136
Manual	31	22	32	34
Carburetor				
4 Barrel	31	30	41	38
2 Barrel	106	107	93	97
1 Barrel	32	32	32	34
Fuel Injection	1	1	4	1

Figure 2.5, REQUESTED TEST SAMPLE vs. ACTUAL SAMPLE

	Possible Substitutions	Number of Substitutions		
		Chicago	Denver	Houston
AMC	5	0	0	0
BUICK	12	0	0	0
CADILLAC	4	0	0	0
CHEVROLET	39	0	0	0
CHRYSLER	4	0	0	0
DATSUN	2	0	0	0
DODGE	10	0	0	0
FORD	35	0	0	0
LINCOLN	1	0	0	0
MERCURY	7	0	0	0
OLDSMOBILE	11	0	0	0
OPEL	1	0	0	0
PLYMOUTH	12	0	0	0
PONTIAC	14	0	0	0
TOYOTA	3	0	0	0
VOLKSWAGEN	10	0	0	0
1966	17	0	0	0
1967	18	0	0	0
1968	21	0	0	0
1969	22	0	0	0
1970	27	0	0	0
1971	30	0	0	0
1972	35	0	0	0
Engine CID	170	19	16	11
Transmission Type	170	15	25	19
Carburetor	170	13	33	22
Total	850	47	74	52
Per Cent Substitution		5.5%	8.7%	6.1%

Figure 2.6, SUBSTITUTIONS BY CATEGORY TO IDEAL SAMPLE

incentives to participants to deliver vehicles to the laboratory for testing. In addition, the Savings Bonds frequently provided the necessary balance of reassurance required by the participant.

In a few isolated situations, the incentives offered were not considered by candidates to be adequate to secure cooperation. In these situations a courteous thanks was extended to the candidate if the vehicle in question was not vital to the success of the program. If a vehicle was vital, additional incentive was offered, normally in the form of cash, to secure the vehicle for testing. Likewise, in isolated circumstances, the Savings Bond was rejected in favor of an equivalent value in cash. All participants were compensated by either a U.S. Savings Bond or equivalent in cash or more. All but a relatively few participants required the use of a courtesy vehicle.

2.3.3 Test Vehicle Handling

The candidate test vehicle file from which vehicles were scheduled for testing has been described. Vehicle tests were scheduled in consideration of project completion requirements and manpower availability. Vehicle procurement personnel normally scheduled vehicles no more than two days in advance of testing. After an initial trial period in an attempt to optimize schedules, experience indicated that a schedule filled in excess of the two day advance period was difficult to revise. Revised schedules were occasionally required if equipment or other failure necessitated revision, and candidates notified no more than two days in advance were normally prompt with respect to vehicle delivery and did not require additional telephone follow-up reminders.

Upon delivery of a test vehicle to the laboratory, vehicle equipment reported originally by the owner was verified and the vehicle was inspected for safety and exhaust system integrity. If rejected, the vehicle was returned to the participant and as previously forewarned, no incentives were provided. If the vehicle was determined to be acceptable, it was furthur inspected for existent damage. Existent damage such as scratches, scrapes, nicks, dents, broken windows, etc. were noted on a Vehicle Inspection sheet along with odometer readings and indication of special or peculiar equipment. Damage was brought to the attention of the participant and agreement was indicated by the participants signature as required. A loan vehicle and test vehicle agreement form was then completed by ATL and the participant.

As indicated, loan vehicles were provided to participants to minimize inconvenience associated with the loss of personal vehicles for the required testing interval. Late model loan vehicles were provided by Dollar-a-Day rental car agencies in each city. Insurance and participant protection was provided not only with respect to loan vehicles, but also relative to test vehicles. In order to maintain rigid testing schedules, ATL elected to have a 20% surplus of loan vehicles available at test sites. Although an attempt was made to encourage the prompt return of loan vehicles, participants frequently failed to meet the required loan vehicle return schedule. Without a surplus of loan vehicles, incoming owners of test vehicles would have experienced unnecessary and potentially aggravating delays. Upon completion of vehicle agreements, all forms were returned to the test vehicle and the vehicle was moved to a staging area for pre-test preparation and conditioning as required.

This study is the second in a current series of emissions studies in metropolitan areas. Experience with the previous program indicated a necessity in some situations for consideration of special vehicle fuel requirements. In the Six Cities Emission Study of Fiscal Year 1971 in which ATL was a sub-contractor and performed testing in Denver and St. Louis, some difficulty relative to test fuel was experienced. In Denver in particular, where testing was performed using tank fuels of high winter-grade volatility, testing on several vehicles was difficult to complete due to vehicle operational problems caused by vapor-lock.

In anticipation of such problems, vehicle fuel criteria were established for the subject study. In order to minimize operational problems relating to test fuels, vehicles were not emission tested using winter-grade fuels. Vehicle fueling criteria were established which required fuel tanks which contained winter-grade fuels at the time of delivery to the laboratory be drained and refilled with summer-grade fuel. Vehicles subjected to this procedure were then operated in a normal manner for about 10 minutes on a city route to purge remaining winter-grade fuel from the fuel system. As a matter of interest, Denver test vehicles were the only vehicles required to be subjected to fuel changes as a result of winter-grade fuel marketing in the test area during the time period testing was performed.

Figure 2.6 shows the routing of test vehicles from acceptance through return to participants at the completion of testing. As indicated, in applicable fuel situations fuel tanks were drained, re-filled to 40% of tank capacity with prescribed test fuel, operated for ten minutes over a city route or equivalent and temperature soaked for the required interval prior to testing. Evaporative test vehicles were drained of fuel, re-filled to 40% of tank capacity with Indolene 30 or summer-grade fuel, operated on the chassis dynamometer for the 1372 second Federal Driving Schedule, and temperature soaked for the required interval prior to pre-test preparation and testing. Upon completion of testing, engine diagnostic procedures were performed (basic timing, point dwell, idle rpm and mixture). The vehicle was then re-fueled as required and returned to the participant.

2.4 FACILITIES AND EQUIPMENT

Automotive Testing Laboratories, Inc. operates permanent laboratory facilities in the Denver area. In order to complete the project as required, it was necessary to utilize two sets of test equipment. Prior to shipment to temporary sites established specifically for this program, equipment was installed in the Denver laboratory and subjected to pre-shipment inspection, calibration and operation.

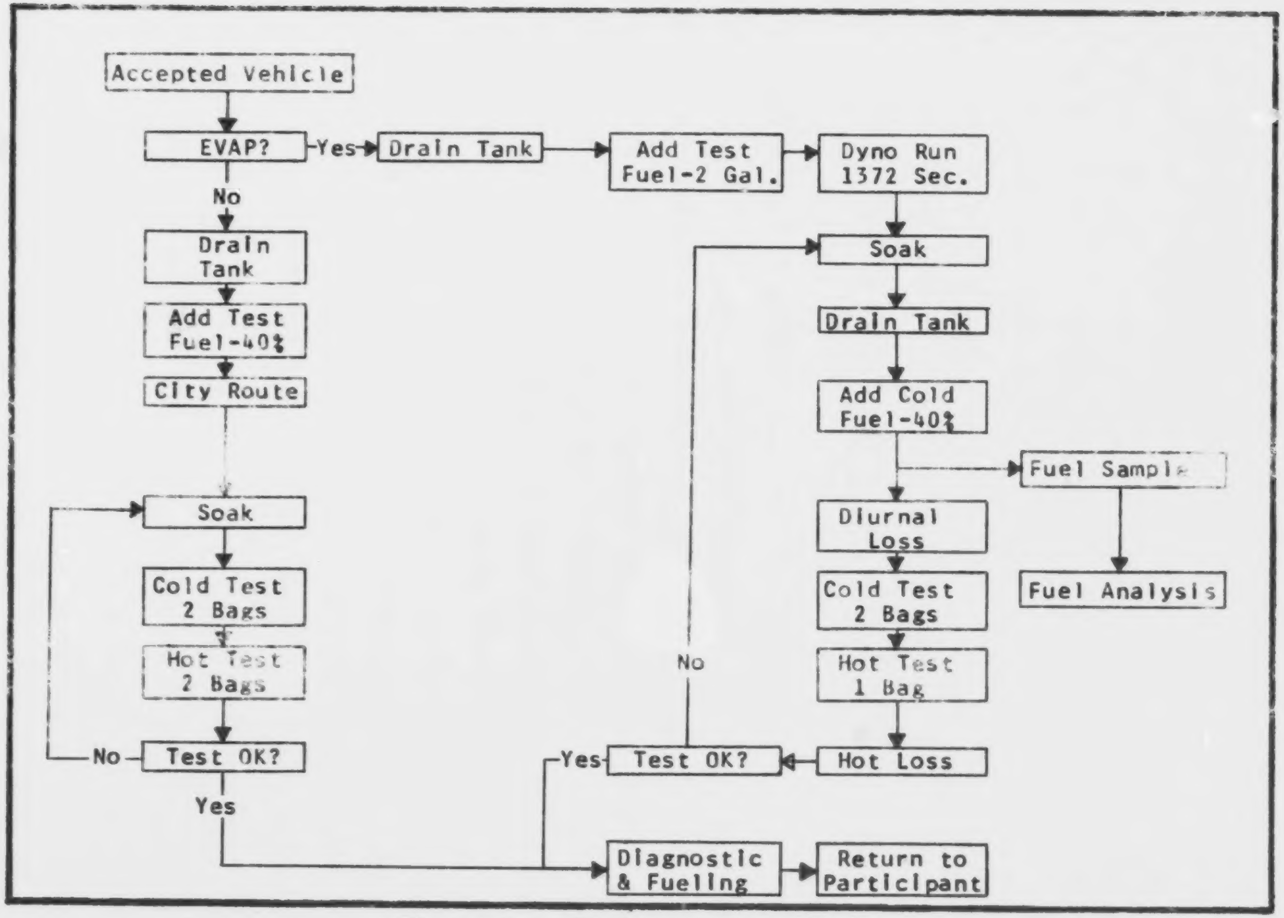

Accepted Vehicle
EVAP?
Yes
No
Drain Tank
Add Test Fuel-2 Gal.
Dyno Run 1372 Sec.
Drain Tank
Add Test Fuel-40%
City Route
Soak
Cold Test 2 Bags
Hot Test 2 Bags
Test OK?
No
Yes
Soak
Drain Tank
Add Cold Fuel-40%
Fuel Sample
Fuel Analysis
Diurnal Loss
Cold Test 2 Bags
Hot Test 1 Bag
Hot Loss
Test OK?
No
Yes
Diagnostic & Fueling
Return to Participant

Figure 2.6, TEST VEHICLE ROUTING

2.4.1 Test Locations

Aside from the permanent laboratory facilities maintained in the Denver metropolitan area, two additional sites were temporarily established in the Chicago and Houston metropolitan areas. Mean elevations above sea-level and the location of each facility is as indicated below:

Denver	19900 East Colfax Avenue Aurora, Colorado 80011 5490 feet
Houston	2136 Wirtcrest Houston, Texas 77055 60 feet
Chicago	1029 South Blvd. Oak Park, Illinois 60302 590 feet

The Denver facility, situated about six miles from the eastern boundary of the Denver city limits, contained about 4800 square feet of laboratory and soak area. The facility in the Houston area, was located in the northwest part of Houston within the city limits and contained about 6,000 square feet of laboratory and soak area. The Chicago facility was located about two miles west of the Chicago city limits and contained about 10,000 square feet of laboratory and soak area.

2.4.2 Constant Volume Samplers

Two constant volume samplers (CVS) were used in the conduct of the study, described as CVS A and CVS B. CVS A was utilized for testing in the Denver area and CVS B was utilized in Houston and Chicago. Samplers, designed and constructed by Automotive Environmental Systems, Inc. of Westminister, California, were of similar design with nominal flow capacity of 325 scfm. Each CVS mass pump (blower) is driven by a 240 volt, 3 phase, 5 horsepower motor through a gear-belt arrangement. Blower revolutions are counted by the use of a magnetic pick-up and associated circuity and displayed on an electronic counter. Relatively constant diluted exhaust temperatures (± 2°F) are maintained by a gas to water heat exchanger and temperature controller.

CVS A, utilized in the Denver testing, had been subjected to regular use over the nine month period preceeding this project. During the period flow rates of CVS A had been measured and recorded at regular intervals. Observation of flow rates indicated that internal deposits and slippage normal to the pump continued to remain stable. CVS B, utilized in Houston and Chicago, was assembled a short time before being put into service. Although this unit was operated for about 25 hours under exhaust gas pumping conditions prior to normal service, blower characteristics continued to change at a relatively slow rate well into the program. Blower flow rate changes will be discussed in a later section.

2.4.3 Emission Analysis Console

Like the constant volume samplers, two exhaust analysis consoles were used to perform testing. Console A was used in Denver and Console B was used in Houston and Chicago. Both consoles are identical in operational and performance characteristics and contain the following major pieces of instrumentation:

Beckman Model 315A NDIR CO analyzers with stacked cell arrangement, 6 range capabilities and CO_2 interference filters.

Beckman Model 315A and 315B NDIR CO_2 analyzers with 3 range capabilities.

Beckman Model 400 Hydrocarbon Flame Ionization Detector.

Thermal Electron Model 10A Chemiluminescent NO and NO_x Analyzer equipped with thermal converter and 7 range capabilities.

Texas Instrument 10 inch dual channel potentiometric recorders.

Analytical consoles were designed and constructed by ATL in accordance with the requirements of applicable Federal Registers for exhaust emissions testing by the 1972 and 1975 procedures. Console modifications for drying emission samples and removing CO_2 from the CO sample stream were not provided, however, in view of the relatively high emission levels expected to be encountered.

2.4.4 SHED and Fuel Conditioning Cart

Evaporative hydrocarbon losses were measured using the technique of SAE J171 which requires losses be contained and measured in a Sealed Housing for Evaporative Determination (SHED). The SHED, constructed of aluminum panels and Dupont Tedlar film is sufficiently large to internally accomodate standard sized passenger cars and light trucks. Nominal dimensions are 21 feet long by 10 feet wide by 8 feet high. Taut sheets of Tedlar film cover the ceiling and doors and strategically located wall cut-outs to permit the entrance of light and visual contact with the vehicle under test. Hinged doors seal upon closing and latches are provided to maintain the enclosure at a relatively air tight condition. Enclosure leakage rates are within specifications of SAE J171. An internal blower of nominal 100 cfm flow capacity is provided to mix the atmosphere of the chamber. Sealed thermocouple connectors and a sample port are also provided.

A Fuel Conditioning Cart designed and constructed by ATL was utilized for pre-conditioning and storage of evaporative emission test fuel. The cart contains an insulated container for storage and temperature conditioning of up to 30 gallons of fuel, a 30 gallon waste fuel container, a heat exchanger with heating and cooling capabilities, automatic temperature control and a nominal 5 gallon per minute fuel pump for vehicle tank draining and filling operations.

To measure hydrocarbon evaporative losses to the SHED atmosphere a Beckman Model 400 Hydrocarbon Flame Ionization Detector was employed. Tank fuel heating was accomplished by regulating voltage to an aluminum heat sink and 1500 watt heating element strategically located below the vehicle fuel tank. A 24 channel multi-point Texas Instruments 0-400 degree F recorder in conjunction with iron-constantan thermocouples was used to monitor SHED ambient and tank fuel temperatures.

2.4.5 Laboratory Standard Calibration Gases

Two sets of laboratory standard gas blends were used to establish and maintain analytical instrument calibrations. Prior to the start-up of testing, gas blends from all contractors involved in this program were shipped to EPA laboratory facilities in Ann Arbor, Michigan, for concurrent analysis and identification. The complement of gaseous standards was of a quantity sufficient to permit calibration of analytical instrumentation at a minimum of five points on each applicable operating range. Figure 2.7 is a list showing concentrations of gaseous project standards.

HC(ppmC)				
39.6	250.5	978.0	5619.0	19906.0
58.2	322.2	1263.0	5772.0	56295.0
108.0	513.0	1909.5	7068.6	
109.5	592.5	2957.0	8045.0	
CO(mole %)				
0.0172	0.2061	0.65	2.98	9.83
0.0511	0.2078	1.01	3.22	11.58
0.0607	0.2977	1.02	3.73	
0.0984	0.3103	1.13	5.53	
0.1064	0.3963	1.67	7.65	
0.1797	0.5500	2.07	7.71	
CO_2(mole %)				
0.4373	3.0275	3.63	7.95	11.08
0.6042	3.0800	4.08	8.00	11.92
0.9940	3.1100	4.82	8.93	13.87
2.0462	3.4100	5.56	10.25	
NO_x(ppm)				
32	109	204	411	785
49	178	250	523	974
98	191	324	695	1188

Figure 2.7, CONCENTRATIONS OF GASEOUS PROJECT STANDARDS

2.4.6 Chassis Dynamometer

Two Clayton chassis dynamometers were used in the conduct of SHED pre-conditioning and exhaust emission tests. Dyno A was used for testing in Denver and Dyno B was used in the performance of testing in Houston and Chicago.

Both chassis dynamometers were equipped with variable inertia flywheel assemblies of 1500 to 5500 lb. vehicle equivalent weight and incremental selection capabilities. The inertia assembly used in conjunction with Dyno A for testing in Denver was of Clayton Mfg. Co.

design and construction. The inertia assembly used in conjunction with Dyno B was of Clayton design but was fabricated and constructed by ATL. Clayton Mfg. Co. was unable to deliver an inertia assembly within the time-frame required for maintenance of project schedules. Prior to pressing the ATL fabricated inertia assembly into service, its inertial loading characteristics were fully evaluated and compared with the Clayton built assembly. Operational characteristics of the ATL assembly were found to be identical to those of the assembly fabricated and supplied by Clayton.

2.4.7 Miscellaneous Equipment

In addition to major pieces of equipment described, a Varian Model G1000 drivers aid was utilized for vehicle testing operation during the Federal Driving Sequence. Engine cooling was provided by nominal 4800 cfm air blowers (fans) directed at the radiator and underhood of the vehicle. The dynamometer utilized for testing in Denver was flush mounted and special provisions for leveling of the test vehicle were not required. The dynamometer used for temporary site testing was floor mounted. Dynamometer entrance and exit ramps were supplied to facilitate on-off vehicle flow and leveling. A ratcheting type winch device was employed to restrain the vehicle during dynamometer operations in addition to the restraint provided by wheel chocks.

Engine diagnostics were performed using garage type tune-up equipment, tachometer, dwell meter and timing light. Additional instrumentation was utilized for test equipment calibration and cross-check and is described in paragraph 2.5.

2.5 EQUIPMENT QUALIFICATION, CALIBRATION AND CROSS-CHECK

In order to ensure the validity of all test data, extensive qualification, calibration and cross-check procedures were required prior to the start-up of testing and at regular intervals during project performance. Compliance criteria were established relative to analytical system calibration, constant volume sampler flow rate determination, dynamometer performance and calibration, and SHED calibration and leakage rates. The following paragraphs describe in detail the procedures which were established and maintained in compliance with criteria.

2.5.1 Constant Volume Sampler

The first in a series of steps to establish and determine compliance with calibration criteria relative to the CVS was to accurately measure the mass pump flow rate. In order to determine the flow rate it was necessary to employ a primary flow measurement device, in this case a Meriam Laminar Flow Element (LFE), and supplemental temperature and pressure measuring devices. The LFE utilized was a Model 50, rated at 1,000 cfm at 8 inches of H_2O pressure differential across the element. Auxiliary devices employed consisted of: a mercury barometer, close tolerance thermometers, U-tube water and mercury manometers, and an inclined water manometer. Instrumentation used at each site was identical or equivalent with one exception. The barometer used in Denver, where mean absolute pressure is about 24.50 inches of Hg or about 5.5 inches of Hg lower than at sea-level, featured indicating scales to accomodate the lower pressures. Both inlet and outlet flow rates of the mass pump were measured at several incremental changes in inlet pressure depressions to bracket pump flow volume and to determine optimum operating conditions. Inlet flow measurements were performed by blocking off the dilution air inlet at dilution air filters.

As specified in the Federal Register mass flow through the laminar flow element was calculated by the following formula:

$$V_{LFE}\ \text{SCFM} = \text{ISCFM} \times T_{LC} \times \frac{P_i\ \text{"}H_2O}{406.8\text{"}H_2O}$$

where:

V_{LFE} SCFM = absolute flow rate of the laminar flow element in standard cubic feet per minute

I SCFM = indicated flow rate of the laminar flow element in standard cubic feet per minute

T_{LC} = a temperature correction factor

P_L "H_2O = the inlet pressure to the laminar flow element in inches of water

and

406.8"H_2O = standard absolute pressure in inches of water.

Calibration of the laminar flow element was traceable to the National Bureau of Standards. Volume of the blower in cubic feet per revolution was calculated as follows:

$$V_o = \frac{V_{LFE}\ \text{SCFM}}{\text{RPM}} \times \frac{406.8''H_2O}{P_p\ ''H_2O} \times \frac{T_p\ {}^{o}R}{530^{o}R}$$

where:

V_o = volume of the blower per revolution in scfm

V_{LFE} SCFM = volume of the laminar flow element in scfm

RPM = revolutions per minute of the blower

406.8"H_2O = standard absolute pressure in inches of water

P_p"H_2O = inlet pressure to the blower in inches of water

T_p ^{o}R = inlet temperature to the blower in degrees absolute

530^{o}R = standard absolute temperature in degrees absolute.

As previously indicated, blower inlet and outlet flow rates were determined at several incremental changes in blower inlet pressure (P_p) and blower differential pressure (Δp). Rates were determined from one operational extreme to the other. Data were then plotted, mid-range P_p and Δp were determined, and V_o was selected and incorporated into computer programs for subsequent calibration verification and mass emission calculations.

As verification of blower flow calibration, effectiveness of the CVS dilution air mixing chamber, and integrity of the plumbing and sampling system, propane recovery tests were performed initially and on a daily basis. Propane recovery tests were considered the standard by which the CVS, sample lines, and the Flame Ionization Detector and other supporting instrumentation were checked and verified. Propane recovery tolerances were established at ± 2 percent of measured injected propane values. A propane recovery test is performed by injecting a known weight of propane into the CVS exhaust collector tube over an interval of time. During this interval the CVS is operational and a diluted sample of injected propane is recovered in the sample bag and measured in terms of ppm carbon by the hydrocarbon FID. Hydrocarbon levels of the dilution air background is subtracted from the value in the sample bag. Propane recovery calculations are then performed and the calculated recovered value is compared with the weighed injected value. Recovery within ± 2 percent of injected propane is indicative of the integrity of calibration and sample sub-systems.

2.5.2 Emission Analysis Console

As discussed, two emission analysis consoles were used in the three sites to perform emission testing. Complete analytical system calibrations were performed at monthly intervals. A check of zero, mid-range, and high calibration points was performed on a weekly basis. Up-scale calibration span settings were established just prior to emission sampling. Calibration tolerances were established at plus or minus one percent of full scale or plus or minus five percent of measured value, whichever is smaller. A first degree equation curve fit was required for defining calibration characteristics of the FID and NO-NO_x instruments. A second degree fit was required for the NDIR CO and CO_2 instruments. Curve fitting was accomplished by computer operation.

Prior to calibration of analytical instrumentation, a complete leak check was performed. First, the sample control solenoid in the CVS was deactivated which shut off flow from the sample bags. Sample pumps were activated. That portion of the sample plumbing system was considered acceptable if the flow indicating rotometers dropped to a flow rate of zero. As a complete and final check on integrity of the analytical system, a sample of tri-blend gas, CO, CO_2 and propane was injected into totally evacuated sample bags to a relatively low volume. The sample was then evacuated through the analytical system. A larger volume of tri-blend gas was then routed into the sample bag and analyzed and recorded in a conventional manner. The same tri-blend gas was then analyzed through the calibration gas circuit and compared with values recorded from the sample bag. The exhaust sample circuit was considered acceptable if bag values were within 0.5% of calibration circuit values. A similar procedure verified the integrity of the NO-NO_x sample circuit using an NO gas blend analyzed through the thermal converter of the chemiluminescent instrument as NO_x.

With reference to the chemiluminescent instrument, a preliminary leak check was performed prior to verification by the sample bag/calibration circuit technique. All sample and by-pass inlets to the instrument were shut off. With the vacuum pump operating, the pump was allowed to evacuate the system down to minimum pressure. The instrument plumbing system was considered to be leak free if the pressure dropped to less than 0.5 torr. Normal reaction chamber operating pressure was in the 5 to 10 torr range.

With further reference to the chemiluminescent instrument, the efficiency of the thermal converter was required to be known. Efficiency was determined by injecting a relatively large quantity of nitric oxide into an auxiliary sample bag partially filled with air. The NO to NO_2 reaction in the bag was then monitored alternately through the thermal converter and converter by-pass. Converter efficiency was assumed to be 100% if the NO_2 (NO_x) concentration in the bag remained relatively constant.

As noted by the manufacturer of the NDIR CO analyzer, instrument response is affected in a positive direction by interference from CO_2 gas and water vapor. Optical or gas filters are provided to minimize interference. However, deterioration in the effectiveness of filters may occur causing CO values to appear to increase. CO_2 and water vapor response were monitored on a weekly basis. This was accomplished by pumping water saturated CO_2 gas through the CO sample circuit and recording the resultant response. The filter system was considered adequate if interference remained below 0.5% of full scale on the 0-10% CO range. A response greater than 0.5% of full scale indicated the filter system was inadequate and required attention.

2.5.3 Chassis Dynamometer

Chassis dynamometers were calibrated at each test site initially and calibrations were verified at intervals of about two weeks during testing. The speedmeter was calibrated first. An 1800 rpm strobe light was beamed at the dynamometer rolls. A vehicle was utilized to drive the rolls at a rate at which the roll speed was in synchronization with the modulating light beam. The gain of the speedmeter circuit was then adjusted to indicate a meter speed of 46.5 miles per hour which corresponds to a roll speed of 1800 rpm. The speed indicating adjusting screw was then locked. A dead weight torque bridge calibration was then performed.

All water was removed from the power absorption unit (water brake). A voltage was then applied to the load cell torque bridge to simulate a roll surface speed of 46.5 mph. A known weight was then applied to the water brake torque arm and the dynamometer horsepower meter was adjusted to correspond to the simulated horsepower absorption value. Power losses internal to the dynamometer were then determined.

The water brake was loaded to an indicated horsepower at 50 mph. A vehicle was used to drive the dynamometer rolls. After indicated horsepower reading had stabilized, the reading was recorded and the vehicle was utilized to drive the rolls to a speed in excess of 55 mph. The vehicle was then raised until the drive tires cleared the rolls. The elapsed time for the roll speed to drop from 55 to 45 mph was recorded. This procedure was repeated at several increments of indicated horsepower. Actual dynamometer horsepower absorbed was then calculated according to the Federal Register as follows:

Hp= 0.06073 (W/T)

where Hp= actual horsepower

0.06073= a constant

W= weight of the inertia flywheel engaged in lbs.

and

T= roll down time from 55 to 45 mph in seconds.

Actual horsepower was then plotted against indicated horsepower and a dynamometer calibration table was developed. Dynamometer emission tests were performed at actual 50 mph horsepower settings determined from the indicated versus actual horsepower table.

2.5.4 SHED and Fuel Conditioning Cart

The SHED and fuel conditioning cart have been described. The fuel conditioning cart did not require special calibration aside from calibration of a sight glass which was referenced with respect to the dispensing of known quantities of fuel. Calibration of the sight glass, which was plumbed in parallel with the insulated storage tank, was accomplished by simply dividing the height of the tank by its known volume. The tank is uniform in diameter. A scale graduated in gallons was then developed and located adjacent to the sight glass.

SHED calibration was performed in accordance with the procedures of SAE J171. The SHED doors were sealed and a hydrocarbon background reading was taken. A known quantity of propane was injected into the SHED and the internal SHED blower was started. When the internal SHED atmosphere was determined to be well mixed as indicated by the recorder trace, a sample was taken and the SHED hydrocarbon level recorded. Calculations were then performed using the measured volume of the SHED and calculated propane content was determined. The calculated value was then compared with the weighed propane value. Calculated SHED propane content was required to be within plus or minus five percent of the weighed injected value. The SHED was then allowed to remain sealed for a period of four hours at which time the SHED atmosphere was again sampled for hydrocarbons. A calculation of SHED propane was again performed using the values obtained after the four hour leak check period and compared with initial calculated values. SHED leakage rate was considered acceptable if the leakage rate was less than 0.1 gram per hour. Typical weighed propane values for SHED calibration and leak check were in the order of 20 to 25 grams of propane per test.

In the performance of SHED calibration and leak checks, calibration of the hydrocarbon flame ionization detector was critical. FID calibration and tolerances were in accordance with procedures as described in paragraph 2.5.2 relative to the emission analysis console.

2.6 TEST PROCEDURES

The following paragraphs describe that phase of the study which relates to vehicle and equipment preparation and the performance of emission tests and engine diagnostic procedures.

2.6.1 Vehicle Preparation

Upon receipt of a vehicle for testing, a pre-test inspection was performed. The general mechanical condition of the vehicle was determined relative to integrity of the exhaust system and safety. The vehicle was then prepared as required for testing. Non-evaporative test vehicles in Denver, where winter-grade fuels were marketed during the testing interval were drained of existing fuel, re-filled with summer-grade fuel to 40% of tank capacity and operated over a 10 minute city route. The vehicle was then parked for the required temperature soak period prior to testing. It was not necessary to comply with fueling criteria at other sites as a result of other than winter grade fuel being marketed in the area. Fuel marketed in the Houston area during February and March when testing was performed was of intermediate grade. Similarly, fuel marketed in Chicago during the month of April was of intermediate grade.

Evaporative emission tests were performed in Denver only. Vehicles scheduled for evaporative tests, upon receipt and acceptance, were drained of existing fuel via the filler neck. The fuel conditioning cart drain hose was then attached to the vehicle fuel pump supply line from the fuel tank and fuel remaining in the bottom of the tank was removed. Two gallons of test fuel (Indolene 30 or summer-grade) was added to the tank. The vehicle was then operated on the chassis dynamometer for the 1372 second Federal Driving Schedule to purge and replace winter-grade fuel remaining in the vehicle fuel system (carburetor and fuel pump). This procedure was utilized in lieu of pre-conditioning on the 10 minute city route. The vehicle was then parked in preparation for evaporative diurnal loss measurement on the following day.

During much of the testing interval in Denver, outside ambient temperatures were well below the freezing point. For this reason and in consideration of the design of the evaporative emission test procedure, basically a test to establish evaporative losses under warm weather conditions, it was considered unrealistic to attempt to precondition vehicles in the relatively cold temperature conditions existent outside. Evaporative and fuel system conditioning was therefore, routinely performed indoors on the chassis dynamometer under more realistic operating conditions.

2.6.2 Equipment Preparation

The qualification and calibration procedures relative to test equipment and instrumentation have been described.

In preparation for testing, test personnel would arrive in the laboratory about one hour in advance of testing. During the one hour interval the following operations were performed:

1. Test instrumentation which had been idle or in a stand-by condition was turned on and allowed to warm-up.
2. Following instrument warm-up, sample and analytical system leak checks were performed.

3. The analytical system was checked for proper operation. Gain, tune and zero settings were observed and recorded.
4. The efficiency of the chemiluminescent instrument thermal converter was checked.
5. Propane recovery tests were performed.
6. The chassis dynamometer was warmed up for 10 minutes by vehicle operation at 50 mph. Inertia weight and dynamometer road load settings were established at conditions prescribed for testing of the first vehicle. The drivers aid speed calibration was verified.

In the preparation of equipment for evaporative emission tests, a quantity of fuel sufficient to conduct evaporative tests was added to the cold storage tank on the day prior to the test. The temperature controller was then set for the proper temperature. For tank thermocouple installation, the tank cap supplied with the vehicle was drilled and thermocouple wires installed such that with the cap in place and locked, the junction was immersed approximately mid-way in the tank fuel without touching the sides of the tank. A new cap was installed after testing.

2.6.3 Federal Exhaust Emission Test Procedure

Cold start exhaust emission tests were performed in accordance with the procedures specified in 35 Federal Register 219, Part II, dated November 10, 1970 and as amended in 36 Federal Register 55, and 36 Federal Register 128. All vehicles were tested as received from the participant without further modification or adjustment.

Prior to testing, all vehicles were temperature soaked a minimum of 12 hours. Dynamometer settings, in preparation for tests on specific vehicles, were established using non-test vehicles, ie, vehicles not scheduled for emission tests in the next 24 hour period. For cold start tests, vehicles were pushed or towed on the dynamometer. Drive tires were inflated to a pressure of 40 psi, the vehicle restraining winch was installed on the rear bumper of the vehicle and wheel chocks were located. The engine cooling fan was moved into place and situated in front of the grille. The vehicle operator positioned himself in the vehicle and adjusted the drivers aid to a location convenient for viewing.

Just prior to vehicle start-up, CVS sample and back-ground bags were evacuated and the blower revolution counter was re-set to zero. To alert the instrument operator that the test was about to start, the vehicle operator sounded the vehicle horn twice in rapid succession. The instrument operator responded with a signal that pre-test preparations were in order. The horn was sounded once again signalling the start of the test. Simultaneously, the engine was cranked and the cold transient segment of the test was started. At the 505 second point, the vehicle horn was again sounded, signalling the end of the cold transient segment and the start of the cold stabilized segment of the test. The instrument operator responded by diverting sample and background flow into the second set of CVS sample and backgound bags. The cold transient sample was then subjected to analysis. The vehicle operator continued the test through the cold stabilized segment. The engine was shut down 2 seconds prior to termination of sampling. The horn was again sounded to signal the end to the sampling period, at which time CVS sampling was terminated and the cold stabilized bag was analyzed.

Upon termination of the cold start segment of the test, the CVS exhaust collector tube was uncoupled from the vehicle tailpipe, the vehicle cooling fan was shut down and the vehicle hood was closed. The vehicle was then allowed to hot soak for a period of ten minutes. Following the ten minute soak interval, the instrument operator was alerted, the engine was re-started and the hot transient segment of the test was begun. Sampling continued through the 505 second interval, the horn was sounded, sample flow was diverted and the hot transient sample and background bags were analyzed. The test was then continued through the 1372 second Driving Schedule, the horn was sounded to signal the end of sampling and a second hot stabilized sample was collected and analyzed. It was then determined if a replicate exhaust emission test was scheduled.

Replicate exhaust emission tests were performed on a total of ten vehicles from model-years 1966 through 1972. Replicate tests were performed on 2 each of the 1970, 1971, and 1972 model-year vehicles and 1 each of the 1966, 1967, 1968, and 1969 model-year vehicles. Test replication was performed as an overall measure of test repeatibility.

At the termination of testing, engine diagnostic procedures were performed. A tach-dwell meter and timing light were attached to the engine and engine rpm, ignition dwell and ignition timing were observed and recorded. Rpm was measured in Drive for automatic transmissions and neutral for manual transmissions. Idle carbon monoxide levels were observed and recorded under engine idling conditions.

2.6.4 SHED Evaporative Emission Test Procedure

Evaporative emission measurements were performed according to the procedures outlined in SAE J171, Measurement of Fuel Evaporative Emissions from Gasoline Powered Passenger Cars and Light Trucks Using the Enclosure Technique. SAE J171 is a procedure for measuring evaporative emissions from fuel systems of passenger cars and light trucks. Emissions are measured during a sequence of laboratory tests that simulate typical vehicle useage in a metropolitan area during summer months. Although any fuel could have been utilized for the conduct of tests, fuel of average summer grade volatility was selected. Vehicle and fuel system pre-conditioning prior to evaporative emission testing has been described.

Following the prescribed temperature soak, all fuel was drained from the vehicle. Fuel was pumped from the tank via the fuel pump supply line. Pre-conditioned test fuel was then added to 40% of tank volume. Bottom filling was employed. A pint sample of test fuel was then extracted from the tank and stored under refrigeration for later analysis. Vehicle windows and baggage compartment were opened and the vehicle was pushed into the SHED. In the SHED, thermocouple leads were connected and the fuel tank heater was situated. SHED doors were then closed and the diurnal loss phase of the evaporative procedure was started. SHED ambient and fuel tank temperatures were monitored continuously and SHED hydrocarbon levels were monitored at five minute intervals. Adjustments to the fuel tank heater were made as required to achieve a constant rise in tank fuel temperature from 60 to 84 degrees F over a period of one hour. At the end of one hour the diurnal loss phase of the test was terminated, the SHED doors were opened, thermocouple leads and the tank heater were disconnected and the vehicle was pushed out of the SHED and on the dynamometer in preparation for cold starting. The vehicle was then cold started and tested as described in 2.6.3 Federal Exhaust Emission Test Procedure. Samples were obtained for the cold transient, cold stabilized and hot transient segments of the procedure.

At the completion of the 505 second hot transient segment of the test, the engine was allowed to remain running, chocks and vehicle tie-downs were removed, the vehicle was driven off the dynamometer and into the SHED. The engine was shut-down before the vehicle entered the SHED. With the vehicle in the SHED, thermocouple leads were attached and the SHED doors were closed. Evaporative hot loss emissions were then monitored along with tank and ambient temperatures for a period of one hour. A vehicle flow sheet was then consulted to determine if evaporative test replication was required.

Evaporative emission tests were performed on 20 of the 1972 model vehicles selected for exhaust emission tests. Replicate evaporative emission tests were performed on two of the 1972 model-year vehicles as a measure of test repeatibility.

At the conclusion of all testing, engine diagnostic measurements were performed on evaporative test vehicles. Diagnostic measurements were performed as described in paragraph 2.6.3 for exhaust emission test vehicles.

2.6.5 Daily Test Schedule

For testing in Denver, the only site in which evaporative emission tests were performed by ATL, a total of five non-evaporative tests were normally performed on non-evaporative test schedule days. On evaporative test schedule days, a total of one evaporative test and four non-evaporative tests were normally performed. At other sites, Houston and Chicago, where evaporative testing was not required, two shift per day operation was employed. Vehicle receipt and start-up of testing shifts were coordinated in such a manner as to permit the conduct of seven non-evaporative emission tests per shift or fourteen tests per day. A summary of exhaust and evaporative emission procedures relating to a specified number of vehicles for each work shift is as follows:

Pre-Test Preparation

1. Vehicles were scheduled to be delivered to the laboratory within a one hour period. Acceptable vehicles were inspected, subjected to pre-test preparation procedures and retired for the specified soak interval.

Non-Evaporative Test Vehicles

1. Following the specified soak interval, non-evaporative emission test vehicles were cold started by applicable procedures. Exhaust emissions from cold transient and cold stabilized segments of the test were collected and analyzed.

2. The vehicle was then shut down for the specified 10 minute hot soak interval.

3. Following the 10 minute hot soak, the vehicle was hot started. Exhaust emissions from hot transient and hot stabilized segments of the test were collected and analyzed.

4. Engine diagnostic procedures were then performed on vehicles which had completed testing. Vehicles were refueled as required and returned to owners.

Evaporative Test Vehicles

1. The vehicle fuel tank was drained, pre-conditioned fuel was added to specified volume and in the SHED the vehicle was tested for diurnal evaporative losses.

2. Federal cold start exhaust emissions during the cold transient and cold stabilized segments were collected and analyzed.

3. The vehicle was shut down for a 10 minute hot soak.

4. Hot start emissions were collected and analyzed during the hot transient segment of the test.

5. In the SHED, evaporative emissions were measured during the hot loss phase of the evaporative emission test procedure.

6. Engine diagnostic procedures were then performed on vehicles which had completed testing. Vehicles were refueled as required and returned to owners.

2.7 DATA HANDLING

In order to ensure the overall validity and accuracy of the study, an elaborate system of data reporting, auditing, verification, and processing procedures were instituted. These procedures have been generally described in preceeding sections and are described in more detail as follows:

2.7.1 Data Collection

For the orderly collection and processing of data it was necessary to devise data sheets which were compatible with data processing and reporting procedures. Data was collected during various phases of vehicle handling and testing by several personnel.

Procurement personnel retained and utilized post-cards returned from mass mailings as reference to select and schedule vehicles for testing in compliance with sample requirements. Procurement personnel also utilized the Customer and Vehicle Information form, a sample of which is shown in Figure 2.8, to indicate tests and test conditions to which the vehicle was required to be subjected. Applicable spaces were completed by procurement personnel and are defined as follows:

EVAP?

Yes, indicating an evaporative emission test was required.

No, indicating an evaporative emission test was not required.

REPL?

Yes, indicating the vehicle was scheduled for a replicate test.

No, indicating the vehicle was not scheduled for a replicate test.

applicable to both evaporative and non-evaporative test replication.

AC LOAD

Yes, indicating the vehicle was to be tested with an additional 10% road load to simulate air conditioning.

No, indicating the vehicle was to be tested without the simulated 10% load.

CUSTOMER AND VEHICLE INFORMATION

VEHICLE INFORMATION

EVAP ?	REPL ?	AC LOAD	ODOMETER	DATE	VEH #
YES	NO	NO	15073	122873	0160

CYL	CID	TRN	BBL	C R	EM C	EV C	IN WT	H P
4	122	04	02	08.5	EM	C0	2250	08.2

VEH MAKE	VEH MODEL	VEH YEAR
FORD	PINTO	1972

LICENSE #	STATE	FEDERAL ID #
BE 2461	COLO	2X11X103526

AC PRESENT ?	FUEL TANK CAP.
NO	11

FUEL TANK AS REC'D
INDICATE (|)

(E / | | F)

Chart Proofed P. H.
Punched [illegible]
Input Proofed [illegible]
Corrected [illegible]
Output REPORT
Bond Sent [illegible]

CUSTOMER CONTACT

CONTACT DATE 12-27-73

NAME: MARGARITO FRANCO

ADDRESS: 3705 INCA

CITY: DENVER STATE: COLO ZIP 80211

HOME PHONE 455-8664 WORK PHONE 534-9996

1972 PAINTED/UNDERCOATED PAST 60 DAYS? NO EVAP TEST ONLY

SCHEDULING

SCHEDULED BY: Sharon

INCOMING DATE: 12-28-73 TIME: 5:00

PROMISED COMPLETION DATE 12-29-73

SPECIAL INSTRUCTIONS BOND

Form ET-1272

Figure 2.8

Customer and Vehicle Information sheets were also used by procurement personnel to indicate, in advance of vehicle acceptance, information relative to the vehicle which had been supplied by the owner. Information supplied in advance by the vehicle owner and filled in by procurement personnel are:

CYL	where	8 indicates an 8 cylinder engine
		6 indicates a 6 cylinder engine
		4 indicates a 4 cylinder engine
CID	which	indicates the cubic inch displacement of the engine rounded to the nearest whole cubic inch
TRN	where	01 indicates an automatic transmission
		03 indicates a standard 3 speed transmission
		04 indicates a standard 4 speed transmission
BBL	where	00 indicates a fuel injected engine
		01 indicates a single barrel carburetor
		02 indicates a two barrel carburetor
		04 indicates a four barrel carburetor
VEH MAKE		which indicates the make of the vehicle as FORD, CHEVROLET, PONTIAC, etc.
VEH MODEL		which indicates the model of the vehicle as IMPALA, FAIRLANE, GTO, etc.
VEH YEAR		which indicates the vehicle model-year as 1969, 1972, etc.

Prior to acceptance of the vehicle at the time of initial inspection, the above noted items were checked by inspection personnel. If verified, the vehicle was accepted. If discrepencies existed, procurement personnel were consulted. The vehicle was then accepted if considered an appropriate substitute or rejected in favor of a more acceptable vehicle. Vehicle and equipment substitutions were indicated in accordance with changes as required. Vehicle inspection personnel then utilized the Customer and Vehicle Information form along with a Vehicle Inspection form and Test and Loan Vehicle Agreements to continue with inspection and pre-test preparation operations. All forms then accompanied the vehicle through the step by step preparation and testing procedures.

In addition to providing information relating to the vehicle, the Customer and Vehicle Information form contained test scheduling and personal information with respect to the owner. Personal information was retained for purposes of Savings Bond Issuance. The form also served to provide a record of performance and completion of data verification and auditing procedures. Upon completion of such tasks, personnel were required to indicate completion by signing off in appropriate spaces shown as "Chart Proofed, Punched, Input Proofed", etc. on the Customer and Vehicle Information form. The remaining blocks of the form were completed by test personnel prior to testing of the subject vehicle.

For collection of exhaust and evaporative emission test data, data forms were designed and utilized. Samples are shown in Figures 2.9 and 2.10. For emission analysis, instrument ranges were assigned range codes. Range codes are indicated by the first digit of the number. The following digits, two to the left of the decimal point, indicate recorder deflection in percent of full scale. The digit to the right of the decimal point indicates the corresponding fraction of percent of full scale. Other data taken and entered on data sheets are self-explanatory.

2.7.2 Data Processing

As part of data processing procedures, verification and auditing procedures were instituted. Procedures were developed as follows:

1. The instrument operator recorded emission data on as many instrument ranges as practical. An up-scale reading was selected to represent emission data. Range code and recorder deflection was noted adjacent to recorder pen traces and on raw data sheet.
2. An auditor (non-operator) then examined completed emission data charts and sheets and verified range codes and recorder deflections. Corrections were made as required.
3. A computer input tape was then punched from verified data, and raw data was placed in a temporary computer storage file.
4. Raw data was retrieved from the temporary computer file and proof-read against raw data sheets. This procedure provided assurance that input and transmission errors had not occured. If errors had occured, corrections were made to temporary files and the process was repeated.

Date 12/29/72 Test No 2126 Veh No 0120

EPA-3 EXHAUST EMISSION TEST

Operator Mike Driver Ted Time 1445

Test Conditions

Barometer 24.32
Temp Dry/Wet 67° 55°
Fuel INDOLENE-30
50 MPH Load 8.8
Inertia 2250
Idle CO 1.4%
Timing T.D.C.
Dwell 35°
Idle rpm 440 [✓ N] D

Test Results

	HC	CO	CO_2	NO	NO_x		Blower Rev. / In.Pr.
Obs. Cold Tran. Sample	332.3	349.0	326.8	519.0	520.2		9599
Obs. Cold Tran. Bkgnd	205.3	300.5	301.2	500.0	500.0		10.8
Obs. Cold Stab. Sample	314.8	319.7	321.0	513.0	514.0		25909
Obs. Cold Stab. Bkgnd	206.0	300.8	301.3	500.0	500.0		10.8
Obs. Hot Tran. Sample	320.3	326.3	325.2	523.2	526.8		9578
Obs. Hot Tran. Bkgnd	205.2	300.5	301.3	500.0	500.0		10.9
Obs. Hot Stab. Sample							
Obs. Hot Stab. Bkgnd		S	h	E	D		

Notes

(18)

Figure 2.9

Date 12/29/72 Test Number 2126 Vehicle No. 2120

SHED RESULTS

Barometer 24.32 FTC 11 40% TC 4 Operator

Cart Level
Start 19 gal. End 15 gal. Fuel I-30

Is this the second run of a replicate pair? NO

Time	DIURNAL			HOT SOAK		
	Enclo Temp	Int Tank Temp	FID Reading	Enclo Temp	Int Tank Temp	FID Reading
Background	75°		219.5	70°	92°	231.5
Initial	72°	59°	237.0	76°	92°	302.0
5 min.	67°	63°	253.0	80°	92°	273.0
10	67°	65°	262.0	81°	92°	297.0
15	68°	69°	279.0	80°	92°	312.5
20	69°	70°	285.0	81°	92°	315.0
25	69°	72°	292.0	80°	92°	316.4
30	70°	73°	296.0	80°	91°	317.6
35	70°	73°	310.2	80°	91°	318.7
40	71°	74°	311.8	80°	91°	319.0
45	71°	76°	314.0	79°	91°	319.5
50	72°	80°	319.5	79°	91°	320.0
55	73°	82°	323.0	79°	90°	320.2
60	73°	84°	326.4	79°	90°	320.4

TANK FUEL ANALYSIS

H/C Ratio 2.26 RVP 9.2 IBP 77.7

Figure 2.10

5. After data was verified, proofed, corrected and reproofed, emission calculations were performed by applicable computer programs.
6. An emission data output sheet was then printed by computer operations and scrutinized point by point for apparent errors. All questionable data was circled. Output sheets containing questionable data were returned to step 2. for additional analysis and the entire process was repeated.
7. Acceptable data was moved from temporary computer storage to permanent files for subsequent processing and statistical analysis and reporting.

2.7.3 Calculation of Results

Exhaust emission test results were calculated in accordance with procedures outlined in applicable Federal Registers for testing by the 1972 and 1975 Federal Test Procedures. Emissions as reported are in terms of grams per mile for mass emissions of carbon monoxide (CO), carbon dioxide (CO_2), hydrocarbons (HC) and oxides of nitrogen (NO_x). Tailpipe emissions of carbon monoxide are reported as measured in terms of percent CO by volume.

Evaporative emission test results are reported for hydrocarbons in terms of grams per test in accordance with procedures outlined in SAE J171.

3. TEST RESULTS

Summary test results are shown in detail in the appendices. It should be pointed out again that test results reported herein are but a portion of a more comprehensive presentation involving, not three, but six U.S. cities. A discussion of test results is meaningful only to the extent that the results relate to compliance with emission standards or as they relate to the three cities investigated.

3.1 OVERALL EXHAUST EMISSION TEST RESULTS

The care with which the program was designed has been described. Similarly, the method of sample selection was described. From this it can be assumed that the sample tested is representative of emissions from vehicle model-years 1966 through 1972 inclusive. Overall test results (Appendix 1), yield the following data by city in grams per mile.

Test Procedure	City	HC		CO		CO_2		NO_x	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1972	Denver	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33
1975		6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37
1972	Houston	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80
1975		5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79
1972	Chicago	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72
1975		5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

3.1.1 Exhaust Emission Test Results by Manufacturer

Upon examination of exhaust emission test results by vehicle manufacturer (Appendix 2), the following tables were constructed:

Highest and Lowest Emissions

Test Procedure	City	Mean HC Emissions by Manufacturer	
		Maximum	Minimum
1972	Denver	GMC (8.51)	Nissan(3.82)
1975		GMC (7.37)	Nissan(3.41)
1972	Houston	Ford(6.65)	Nissan(2.25)
1975		Ford(5.81)	Nissan(2.34)
1972	Chicago	Ford(6.64)	Nissan(2.84)
1975		Ford(6.15)	Nissan(2.60)

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Test Procedure	City	Mean CO Emissions by Manufacturer	
		Maximum	Minimum
1972	Denver	Chrysler(142.8)	Nissan(49.1)
1975		Chrysler(128.5)	Nissan(43.4)
1972	Houston	Chrysler (84.5)	Nissan(15.9)
1975		GMC (69.5)	Nissan(13.4)
1972	Chicago	AMC (111.2)	Nissan(21.1)
1975		AMC (102.7)	Nissan(17.4)

Test Procedure	City	Mean NO_x Emissions by Manufacturer	
		Maximum	Minimum
1972	Denver	Ford (3.10)	Nissan(1.95)
1975		Ford (3.23)	Nissan(2.01)
1972	Houston	Toyota (4.43)	VW (3.00)
1975		Chrylser(4.62)	VW (2.85)
1972	Chicago	Ford (4.95)	Toyota(2.18)
1975		Ford (5.07)	Toyota(2.15)

In paragraphs 3.1.2 through 3.1.7 which follow, exhaust emission test results are discussed relative to seven variables. With respect to the discussion it should be pointed out that emissions are dependent on not one but all of the variables presented and discussed. In this respect conclusions which were arrived at are not necessarily totally valid.

3.1.2 Exhaust Emission Test Results by Model-Year

Upon examination of exhaust emission test results (Appendix 3) the following general trends in emissions by model year are observed:

In all three cities (Denver, Houston and Chicago):

Emissions of HC and CO tend to decrease from model-years 1966 through 1972 while emissions of NO_x tend to increase. Emissions of CO_2 also tend to increase.

3.1.3 Exhaust Emission Test Results by Number of Cylinders

Upon examination of exhaust emission test results by the number of engine cylinders (Appendix 4) the following general trends in emissions are observed:

In all three cities:

Emissions of HC, CO, CO_2 and NO_x tend to decrease with a decreasing number of engine cylinders.

3.1.4 Exhaust Emission Test Results by Engine Displacement

Upon examination of test results by engine displacement in cubic inches (Appendix 5), the following general trends in emissions are observed.

In all three cities:

HC and CO emissions are greater from engines in the 251 to 300 cubic inch category and in the 300 to 399 cubic inch category than from engines less than 251 cubic inches and from engines greater than 399 cubic inches.

CO_2 and NO_x emissions generally increase with increasing engine size.

3.1.5 Exhaust Emission Test Results by Vehicle Weight

Upon examination of test results by vehicle weight (Appendix 6) the following general trends in emissions are observed:

In all three cities:

HC and CO emissions from vehicles under 2000 lbs tend to be higher than emissions from vehicles in the 2001 to 2500 lb category.

HC and CO emissions tend to increase from vehicles over 2001 lbs with increasing vehicle weight to about the 4000 lb category at which point HC emissions tend to decrease with increasing weight.

CO_2 and NO_x emissions tend to increase with increasing vehicle weight.

3.1.6 Exhaust Emission Test Results by Transmission Type

Upon examination of test results by transmission type (Appendix 7), the following general trends in emissions are observed:

In all three sites:

HC, CO, CO_2 and NO_x emissions were lower from vehicles equipped with manual transmissions than from vehicles equipped with automatic transmissions.

3.1.7 Exhaust Emission Test Results by Carburetor

Upon examination of test results by carburetor (Appendix 8), the following general trends in emissions are observed:

In all three sites:

HC and CO emissions were lowest for vehicles equipped with fuel injection.

NO_x emissions were highest for vehicles equipped with fuel injection.

CO emissions tend to increase with an increase in the number of carburetor venturis, while the converse was true for NO_x emissions.

HC emissions tended to increase from a one barrel to a four barrel to a two barrel carburetor.

3.1.8 Exhaust Emission Test Repeatibility (Replication)

As discussed, replicate exhaust emission tests were performed on ten vehicles in each of the three cities. Since the object of the replicate testing is to determine that the tests are actually repeatable and, therefore, meaningful, the paired "T" test can be applied to test for any differences between the first emission test and the replicate emission test. Examination of replicate exhaust emission tests (Appendix 9) indicates the following:

In Denver:

At a 0.05 significance level there is no discernable difference between the first emission test and the replicate test for any of the emissions measured.

In Houston:

Again, at a 0.05 significance level there is no difference between tests.

In Chicago:

At a 0.05 significance level HC, CO, and NO_x emissions show no difference between tests. CO_2 does indicate some difference between the first test and the replicate.

However, when the Chicago CO_2 test is compared with the other two cities it indicates that the difference resulted more from a standard deviation decrease than a mean variation.

3.1.9 Vehicles Meeting 1972 Federal Exhaust Emission Standards

Upon examination of test results with reference to the 1972 Federal Exhaust Emission Standards (Appendix 10), the following is indicated:

In Denver:

With respect to the 1972 model-year vehicles tested;

14% were found to emit hydrocarbons at a level below the 1972 Federal Standard of 3.4 grams per mile.

9% were found to emit carbon monoxide at a level below the 1972 Federal Standard of 39 grams per mile.

3% were found to emit both hydrocarbons and carbon monoxide below the Federal Standards of 3.4 and 39 grams per mile respectively.

With respect to all vehicles tested in Denver:

4% were found to emit hydrocarbons at a level below the Federal Standard of 3.4 grams per mile.

3% were found to emit carbon monoxide at a level below the Federal Standard of 39 grams per mile.

Less than 1% were found to emit both hydrocarbons and carbon monoxide at levels below the Federal Standards of 3.4 and 39 grams per mile respectively.

In Houston:

With respect to the 1972 model-year vehicles tested;

49% were found to emit hydrocarbons at a level below the 1972 Federal Standard of 3.4 grams per mile.

51% were found to emit carbon monoxide at a level below the 1972 Federal Standard of 39 grams per mile.

34% were found to emit both hydrocarbons and carbon monoxide below the Federal Standards of 3.4 and 39 grams per mile respectively.

With respect to all vehicles tested in Houston:

20% were found to emit hydrocarbons at a level below the Federal Standard of 3.4 grams per mile.

22% were found to emit carbon monoxide at a level below the Federal Standard of 39 grams per mile.

13% were found to emit both hydrocarbons and carbon monoxide at levels below the Federal Standards of 3.4 and 39 grams per mile respectively.

In Chicago:

With respect to the 1972 model-year vehicles tested;

77% were found to emit hydrocarbons at a level below the 1972 Federal Standard of 3.4 grams per mile.

51% were found to emit carbon monoxide at a level below the 1972 Federal Standard of 39 grams per mile.

51% were found to emit both hydrocarbons and carbon monoxide below the 1972 Federal Standards of 3.4 and 39 grams respectively.

With respect to all vehicles tested in Chicago;

32% were found to emit hydrocarbons at a level below the Federal Standard of 3.4 grams per mile.

19% were found to emit carbon monoxide at a level below the Federal Standard of 39 grams per mile.

16% were found to emit both hydrocarbons and carbon monoxide at levels below the Federal Standards of 3.4 and 39 grams per mile respectively.

4. ACKNOWLEDGEMENTS

A sincere thank you is extended to the Dollar-A-Day Rental Car Systems for their efficient service in providing courtesy vehicles in the Denver, Houston and Chicago areas, with a very special acknowledgement to June Samuels and staff of the Denver Office for the unusually responsive and courteous service.

The assistance of Hibbert/Laman is acknowledged with respect to its contributions toward maintaining rigid project schedules, with a sincere thank you to Jim Kramer for his invaluable contributions.

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TABLE 1A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. VEHICLE MAKE

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.88	1.89	104.0	38.7	409.3	71.6	1.99	0.73
BUICK	12	7.19	3.25	136.9	53.9	575.1	130.2	2.72	1.62
CADILLAC	4	5.07	1.39	131.0	33.8	750.0	111.7	3.49	1.60
CHEVROLET	39	9.75	8.60	117.3	66.6	512.5	123.7	2.43	1.27
CHRYSLER	4	9.68	5.37	175.4	88.4	607.0	64.6	2.19	1.46
DATSUN	2	3.82	0.51	49.1	27.2	312.4	12.5	1.95	0.11
DODGE	10	7.64	2.89	136.9	52.3	511.4	122.9	2.51	1.14
FORD	35	7.00	2.97	96.5	41.5	501.9	120.7	3.04	1.18
LINCOLN	1	6.32	0.00	95.8	0.0	636.6	0.0	4.89	0.00
MERCURY	7	8.23	4.85	111.4	59.0	598.4	67.1	3.15	1.54
OLDSMOBILE	11	9.06	9.90	111.7	53.9	612.0	90.8	2.83	0.92
OPEL	1	3.17	0.00	58.5	0.0	333.2	0.0	2.32	0.00
PLYMOUTH	12	8.05	4.54	136.8	57.8	452.9	117.8	2.73	1.78
PONTIAC	14	7.11	2.13	105.0	40.7	585.7	75.9	3.13	1.46
TOYOTA	3	5.02	0.83	75.9	8.0	361.1	109.6	2.61	1.40
VOLKSWAGEN	10	6.76	5.00	81.7	37.6	295.9	65.9	2.16	1.43
ALL VEHICLES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

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TABLE 1A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MAKE

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.37	5.12	53.7	38.5	444.8	93.8	3.47	1.77
BUICK	12	5.78	3.42	94.8	58.3	636.7	127.8	5.09	1.96
CADILLAC	4	4.08	1.98	71.6	35.4	731.5	88.3	4.83	1.84
CHEVROLET	39	7.42	7.46	84.8	56.9	536.7	113.1	3.72	1.42
CHRYSLER	4	7.71	4.70	102.9	39.6	596.3	132.7	4.04	0.67
DATSUN	2	2.25	0.23	15.9	10.3	315.5	50.1	3.53	0.13
DODGE	10	6.37	3.13	110.8	108.8	532.5	109.6	3.63	2.18
FORD	35	6.87	6.85	73.9	52.1	524.8	109.5	4.16	2.03
LINCOLN	1	4.71	0.00	87.6	0.0	702.1	0.0	5.81	0.00
MERCURY	7	5.81	2.65	80.8	54.0	673.9	90.8	4.83	2.27
OLDSMOBILE	11	6.05	3.63	86.8	47.3	629.3	111.5	4.66	2.42
OPEL	1	3.63	0.00	53.3	0.0	399.5	0.0	4.71	0.00
PLYMOUTH	12	4.19	1.04	56.4	19.8	508.2	88.6	5.16	1.34
PONTIAC	14	5.41	2.52	67.5	31.7	612.8	139.0	4.56	1.68
TOYOTA	3	3.48	2.16	24.4	4.7	360.2	30.7	4.43	0.73
VOLKSWAGEN	10	5.99	5.90	61.4	36.0	324.1	41.6	3.00	1.00
ALL VEHICLES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 1A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MAKE

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.90	2.56	111.2	61.8	449.2	74.2	2.63	1.24
BUICK	12	4.78	1.91	80.4	39.8	599.7	123.1	4.33	1.50
CADILLAC	4	3.39	2.44	62.4	58.8	761.6	137.9	4.96	2.92
CHEVROLET	39	5.98	3.45	75.5	45.2	499.5	105.2	3.53	1.45
CHRYSLER	4	5.04	0.78	72.1	35.3	588.4	68.7	4.21	1.30
DATSUN	2	2.84	0.65	21.1	14.2	336.3	16.7	4.70	0.72
DODGE	10	5.12	2.65	65.4	27.6	488.8	112.3	4.67	1.56
FORD	35	6.25	6.89	58.9	33.8	517.2	114.8	4.68	1.65
LINCOLN	1	2.92	0.00	48.5	0.0	732.5	0.0	4.98	0.00
MERCURY	7	9.13	10.66	51.7	23.4	602.8	97.6	6.29	2.12
OLDSMOBILE	11	4.94	2.82	64.2	30.3	595.9	88.0	4.54	1.18
OPEL	1	1.73	0.00	41.9	0.0	406.3	0.0	1.26	0.00
PLYMOUTH	12	3.85	1.21	62.6	32.3	465.5	77.3	5.04	1.60
PONTIAC	14	6.87	7.25	68.1	20.4	589.9	94.6	4.55	1.32
TOYOTA	3	5.11	5.72	75.1	93.9	315.5	66.8	2.18	1.56
VOLKSWAGEN	10	4.69	2.31	53.7	21.9	308.8	58.0	2.29	0.74
ALL VEHICLES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 1B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MAKE

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.40	1.79	97.0	42.4	398.8	72.4	2.04	0.87
BUICK	12	6.27	2.73	117.9	49.0	559.4	122.4	2.99	1.73
CADILLAC	4	4.50	1.36	106.6	17.5	724.8	106.6	3.76	1.54
CHEVROLET	39	8.28	7.38	101.4	57.6	492.5	117.5	2.45	1.30
CHRYSLER	4	8.02	3.62	150.4	70.2	590.9	58.8	2.37	1.40
DATSUN	2	3.41	0.32	43.4	21.9	301.0	13.4	2.01	0.07
DODGE	10	6.37	2.28	123.5	51.6	489.9	107.9	2.53	1.16
FORD	35	6.24	2.53	84.7	34.1	484.0	114.4	3.18	1.15
LINCOLN	1	5.85	0.00	94.4	0.0	608.1	0.0	4.65	0.00
MERCURY	7	7.73	4.33	96.7	60.6	578.7	67.1	3.29	1.71
OLDSMOBILE	11	8.50	9.70	100.1	51.7	592.0	92.4	2.89	1.08
OPEL	1	2.72	0.00	47.5	0.0	322.9	0.0	2.20	0.00
PLYMOUTH	12	7.12	4.08	125.4	58.3	439.9	114.4	2.72	1.75
PONTIAC	14	6.04	1.67	88.6	34.8	565.6	71.0	3.28	1.52
TOYOTA	3	4.60	0.58	68.6	14.3	344.9	105.1	2.56	1.32
VOLKSWAGEN	10	6.13	5.04	76.9	37.4	287.9	62.3	2.07	1.42
ALL VEHICLES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 1B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MAKE

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.19	4.55	49.5	38.2	429.5	87.9	3.52	1.76
BUICK	12	5.40	3.67	78.2	47.7	611.6	113.2	5.09	1.80
CADILLAC	4	3.43	1.70	60.6	35.7	698.0	87.3	4.74	1.81
CHEVROLET	39	6.60	6.82	70.9	46.1	522.0	103.3	3.87	1.35
CHRYSLER	4	5.99	2.98	83.1	31.4	578.7	114.2	4.35	0.38
DATSUN	2	2.34	0.68	13.4	8.7	305.5	43.3	3.50	0.02
DODGE	10	5.15	2.37	90.5	83.0	525.1	105.3	4.03	2.07
FORD	35	6.00	5.45	61.6	43.6	511.3	100.9	4.38	2.15
LINCOLN	1	3.92	0.00	67.4	0.0	690.2	0.0	6.42	0.00
MERCURY	7	5.16	2.28	62.7	45.6	658.1	92.0	5.13	2.53
OLDSMOBILE	11	5.30	3.14	77.9	45.8	606.7	116.5	4.64	2.34
OPEL	1	3.02	0.00	41.8	0.0	389.0	0.0	4.84	0.00
PLYMOUTH	12	3.63	0.83	47.2	19.4	491.7	77.3	5.21	1.22
PONTIAC	14	4.75	2.26	56.2	26.1	585.6	125.0	4.69	1.68
TOYOTA	3	3.28	2.06	20.0	1.1	351.6	25.9	4.31	0.78
VOLKSWAGEN	10	5.77	6.19	56.5	36.9	320.1	41.8	2.85	0.95
ALL VEHICLES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79

TABLE 1B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MAKE

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.40	2.50	102.7	65.2	440.4	77.3	2.84	1.40
BUICK	12	4.35	1.73	67.8	34.0	585.0	121.3	4.51	1.51
CADILLAC	4	3.22	2.42	57.9	59.7	728.3	176.9	5.05	3.26
CHEVROLET	39	5.35	2.92	65.2	35.5	488.9	99.2	3.61	1.43
CHRYSLER	4	4.58	0.68	67.6	38.2	579.2	65.1	4.30	1.27
DATSUN	2	2.60	0.64	17.4	9.7	332.6	19.0	4.90	0.89
DODGE	10	4.60	2.28	58.3	25.1	481.9	109.5	4.84	1.59
FORD	35	5.82	6.58	50.5	29.3	506.0	110.7	4.79	1.70
LINCOLN	1	3.24	0.00	58.9	0.0	712.1	0.0	4.55	0.00
MERCURY	7	8.23	10.20	43.9	19.9	592.7	96.1	6.54	2.30
OLDSMOBILE	11	4.63	2.78	58.1	27.4	579.6	85.1	4.58	1.21
OPEL	1	1.69	0.00	41.8	0.0	401.5	0.0	1.56	0.00
PLYMOUTH	12	3.53	1.20	55.7	32.9	457.1	77.4	5.11	1.67
PONTIAC	14	6.41	6.86	61.1	20.7	577.7	90.1	4.79	1.39
TOYOTA	3	4.51	4.82	70.7	89.0	311.0	69.0	2.15	1.56
VOLKSWAGEN	10	4.29	2.30	49.4	22.4	303.9	58.1	2.16	0.70
ALL VEHICLES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 2A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MANUFACTURER

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.88	1.89	104.0	38.7	409.3	71.6	1.99	0.73
CHRYSLER	26	8.14	4.00	142.8	60.0	499.1	122.5	2.56	1.47
FORD	43	7.19	3.28	98.9	43.8	520.7	118.5	3.10	1.24
GM	81	8.51	7.21	117.3	57.7	557.4	126.9	2.70	1.34
NISSAN	2	3.82	0.51	49.1	27.2	312.4	12.5	1.95	0.11
TOYOTA	3	5.02	0.83	75.9	8.0	361.1	109.6	2.61	1.40
VOLKSWAGEN	10	6.76	5.00	81.7	37.6	295.9	65.9	2.16	1.43
ALL VEHICLES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 2A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. VEHICLE MANUFACTURER

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.37	5.12	53.7	38.5	444.8	93.8	3.47	1.77
CHRYSLER	26	5.57	2.93	84.5	73.1	531.1	104.0	4.40	1.76
FORD	43	6.65	6.27	75.3	51.2	553.2	120.5	4.30	2.05
GM	81	6.43	5.66	82.5	50.8	585.2	129.4	4.26	1.76
NISSAN	2	2.25	0.23	15.9	10.3	315.5	50.1	3.53	0.13
TOYOTA	3	3.48	2.16	24.4	4.7	360.2	30.7	4.43	0.73
VOLKSWAGEN	10	5.99	5.90	61.4	36.0	324.1	41.6	3.00	1.00
ALL VEHICLES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 2A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MANUFACTURER

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.90	2.56	111.2	61.8	449.2	74.2	2.63	1.24
CHRYSLER	26	4.52	1.91	65.1	29.9	493.4	97.8	4.77	1.51
FORD	43	6.64	7.49	57.5	31.8	536.2	118.3	4.95	1.79
GM	81	5.63	4.11	72.3	39.3	554.9	126.0	4.00	1.57
NISSAN	2	2.84	0.65	21.1	14.2	336.3	16.7	4.70	0.72
TOYOTA	3	5.11	5.72	75.1	93.9	315.5	66.8	2.18	1.56
VOLKSWAGEN	10	4.69	2.31	53.7	21.9	308.8	58.0	2.29	0.74
ALL VEHICLES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 2B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MANUFACTURER

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.40	1.79	97.0	42.4	398.8	72.4	2.04	0.87
CHRYSLER	26	6.97	3.33	128.5	56.0	482.4	114.6	2.59	1.44
FORD	43	6.47	2.86	86.9	38.6	502.3	112.9	3.23	1.24
GM	81	7.37	6.40	101.1	50.5	537.9	121.9	2.80	1.41
NISSAN	2	3.41	0.32	43.4	21.9	301.0	13.4	2.01	0.07
TOYOTA	3	4.60	0.58	68.6	14.3	344.9	105.1	2.56	1.32
VOLKSWAGEN	10	6.13	5.04	76.9	37.4	287.9	62.3	2.07	1.42
ALL VEHICLES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 2B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MANUFACTURER

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.19	4.55	49.5	38.2	429.5	87.9	3.52	1.76
CHRYSLER	26	4.58	2.07	69.4	56.6	517.9	95.5	4.62	1.59
FORD	43	5.81	5.00	61.9	42.8	539.4	114.0	4.55	2.19
GM	81	5.73	5.20	69.5	42.5	564.8	119.0	4.35	1.68
NISSAN	2	2.34	0.68	13.4	8.7	305.5	43.3	3.50	0.02
TOYOTA	3	3.28	2.06	20.0	1.1	351.6	25.9	4.31	0.78
VOLKSWAGEN	10	5.77	6.19	56.5	36.9	320.1	41.8	2.85	0.95
ALL VEHICLES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.38	1.79

TABLE 2B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE MANUFACTURER

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AMC	5	5.40	2.50	102.7	65.2	440.4	77.3	2.84	1.40
CHRYSLER	26	4.10	1.69	58.6	29.9	485.4	96.2	4.88	1.55
FORD	43	6.15	7.14	49.7	27.6	524.9	114.6	5.07	1.88
GM	81	5.14	3.75	63.3	32.7	541.5	119.0	4.12	1.60
NISSAN	2	2.60	0.64	17.4	9.7	332.6	19.0	4.90	0.89
TOYOTA	3	4.51	4.82	70.7	89.0	311.0	69.0	2.15	1.56
VOLKSWAGEN	10	4.29	2.30	49.4	22.4	303.9	58.1	2.16	0.70
ALL VEHICLES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 3A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. MODEL YEARFACTURER

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1966	17	10.97	7.41	132.7	55.7	465.3	129.3	2.40	1.57
1967	18	15.23	9.55	172.0	51.4	418.6	94.4	1.67	0.90
1968	21	8.25	5.20	121.9	82.8	539.6	120.3	2.67	1.19
1969	22	6.86	1.60	113.9	42.5	492.0	125.5	2.79	1.38
1970	27	6.36	1.71	102.9	37.8	520.2	105.9	3.18	1.09
1971	30	5.89	2.18	92.0	44.1	513.7	152.3	2.76	1.34
1972	35	5.61	4.34	90.4	35.8	576.5	154.3	3.00	1.37
ALL VEHICLES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 3A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. MODEL YEARFACTURER

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1966	17	9.62	3.56	128.5	68.6	472.3	104.9	2.88	1.46
1967	18	9.27	8.33	98.4	37.1	458.4	81.2	3.60	1.53
1968	21	8.05	6.78	86.5	53.0	528.9	104.6	3.87	1.76
1969	22	5.35	1.69	75.4	34.4	540.5	89.2	5.07	1.73
1970	27	6.49	6.28	80.7	69.6	532.4	131.9	3.94	1.78
1971	30	4.07	1.55	64.5	48.4	566.1	174.2	4.52	1.71
1972	35	3.98	4.57	44.7	25.7	615.3	146.8	4.68	1.81
ALL VEHICLES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 3A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. MODEL YEARFACTURER

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1966	17	11.75	9.77	96.6	44.8	444.1	94.4	3.44	1.78
1967	18	7.42	3.27	90.6	36.5	480.5	104.9	3.69	2.01
1968	21	7.04	6.34	68.7	31.9	489.4	104.1	4.25	1.91
1969	22	5.51	3.07	74.8	48.9	508.4	91.8	5.12	1.91
1970	27	4.16	1.23	60.0	28.0	509.5	106.8	4.39	1.65
1971	30	4.54	2.49	61.7	33.5	507.2	142.2	3.75	1.41
1972	35	3.03	1.07	44.4	26.2	604.1	166.4	4.44	1.35
ALL VEHICLES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 3B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. MODEL YEAR

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1966	17	9.78	6.60	123.6	54.3	441.4	121.7	2.30	1.60
1967	18	13.92	9.46	157.5	51.8	407.0	89.9	1.77	1.10
1968	21	6.92	3.68	101.8	65.6	518.8	108.3	2.87	1.25
1969	22	5.97	1.28	97.8	38.1	476.7	119.9	2.93	1.47
1970	27	5.55	1.56	87.5	31.2	503.3	103.0	3.32	1.11
1971	30	5.19	1.75	80.3	37.3	494.8	145.1	2.74	1.31
1972	35	4.75	2.42	80.4	32.5	559.3	148.9	3.08	1.39
ALL VEHICLES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 3B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. MODEL YEAR

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1966	17	8.42	3.48	106.6	45.8	465.7	95.4	3.00	1.38
1967	18	8.20	7.56	85.9	35.3	448.2	73.4	3.70	1.54
1968	21	7.39	6.57	71.7	41.2	513.5	99.9	4.22	1.69
1969	22	4.68	1.45	62.2	29.5	526.6	83.8	5.30	1.76
1970	27	5.47	4.47	66.3	56.7	519.5	125.1	4.20	1.89
1971	30	3.71	1.48	55.5	45.3	543.1	161.0	4.46	1.68
1972	35	3.52	4.09	37.4	23.0	593.1	139.7	4.69	1.81
ALL VEHICLES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79

TABLE 3B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. MODEL YEAR

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1966	17	10.99	9.37	89.5	45.1	437.3	96.6	3.49	1.88
1967	18	6.84	2.99	80.3	31.9	469.3	102.9	3.82	2.15
1968	21	6.63	6.09	61.3	29.0	478.5	99.4	4.43	2.00
1969	22	4.80	2.31	61.9	36.2	498.2	86.3	5.31	1.89
1970	27	3.73	1.13	49.4	23.5	500.0	103.5	4.55	1.67
1971	30	4.06	1.97	55.8	31.2	496.6	138.9	3.80	1.43
1972	35	2.81	0.96	40.4	24.9	588.7	155.7	4.47	1.43
ALL VEHICLES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 4A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. NUMBER OF CYLINDERS

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
8	128	8.32	6.14	119.6	56.3	570.4	102.1	2.90	1.33
6	22	6.83	3.16	105.1	52.3	360.1	48.2	2.19	1.23
4	20	5.69	3.68	75.3	29.2	315.0	67.9	2.12	1.15
ALL VEHICLES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 4A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. NUMBER OF CYLINDERS

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
8	129	6.60	5.78	84.6	56.8	594.8	109.2	4.39	1.89
6	21	5.20	3.14	59.8	38.9	413.3	49.2	3.81	1.53
4	20	4.63	4.38	46.9	30.9	338.3	49.4	3.31	1.02
ALL VEHICLES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 4A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. NUMBER OF CYLINDERS

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
8	131	5.85	5.08	69.7	37.8	565.2	106.0	4.50	1.63
6	19	5.42	5.27	60.9	40.5	385.6	42.6	3.89	1.78
4	20	4.40	2.76	54.8	38.2	320.6	52.7	2.48	1.13
ALL VEHICLES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 4B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. NUMBER OF CYLINDERS

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
8	128	7.30	5.40	104.1	49.5	550.5	97.0	3.00	1.37
6	22	5.86	2.68	96.2	53.5	348.1	45.4	2.26	1.29
4	20	5.12	3.68	68.7	29.4	305.2	64.1	2.07	1.13
ALL VEHICLES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 4B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. NUMBER OF CYLINDERS

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
8	129	5.79	5.02	70.6	46.4	575.3	100.5	4.54	1.84
6	21	4.60	2.78	49.7	33.8	408.6	50.1	4.03	1.69
4	20	4.37	4.56	42.3	30.9	331.5	47.8	3.20	1.04
ALL VEHICLES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79

TABLE 4B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. NUMBER OF CYLINDERS

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
8	131	5.35	4.76	61.0	32.5	552.4	100.5	4.63	1.68
6	19	5.00	5.02	55.0	42.0	378.7	43.6	3.94	1.82
4	20	4.02	2.48	50.2	36.6	316.5	53.4	2.45	1.16
ALL VEHICLES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 5A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. ENGINE DISPLACEMENT (CUBIC INCHES)

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
LESS THAN 251	41	6.37	3.43	91.5	45.4	336.4	61.0	2.16	1.19
251-330	41	10.83	9.04	121.6	70.3	489.7	80.9	2.44	1.16
331-399	53	6.86	2.52	118.6	48.7	573.2	63.8	2.86	1.16
MORE THAN 399	35	7.44	4.90	117.2	49.7	656.6	100.2	3.47	1.56
ALL VEHICLES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 5A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. ENGINE DISPLACEMENT (CUBIC INCHES)

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
LESS THAN 251	40	5.03	3.74	54.7	35.1	375.8	62.3	3.62	1.28
251-330	44	7.62	7.12	76.8	40.1	513.6	67.1	3.99	1.55
331-399	51	6.22	4.84	91.7	62.4	597.9	99.9	4.12	1.91
MORE THAN 399	35	5.71	5.10	81.8	66.3	687.0	90.6	5.20	2.07
ALL VEHICLES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 5A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. ENGINE DISPLACEMENT (CUBIC INCHES)

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
LESS THAN 251	38	4.93	4.21	57.9	39.5	349.8	56.4	3.13	1.63
251-330	45	6.14	3.54	71.8	45.7	496.7	50.8	4.27	1.64
331-399	52	6.23	6.18	72.5	28.7	557.1	86.3	4.40	1.67
MORE THAN 399	35	4.85	4.89	62.5	38.4	661.8	113.8	4.95	1.52
ALL VEHICLES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 5B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. ENGINE DISPLACEMENT (CUBIC INCHES)

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
LESS THAN 251	41	5.58	3.18	83.7	45.7	325.5	57.5	2.17	1.22
251-330	41	9.69	8.37	106.8	62.8	470.8	71.5	2.51	1.19
331-399	53	6.02	2.15	103.9	43.6	552.5	59.6	2.93	1.17
MORE THAN 399	35	6.29	3.09	99.7	40.5	636.9	94.2	3.65	1.58
ALL VEHICLES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 5B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. ENGINE DISPLACEMENT (CUBIC INCHES)

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
LESS THAN 251	40	4.57	3.71	47.0	32.1	370.4	62.8	3.68	1.44
251-330	44	6.92	6.52	66.1	36.5	500.1	62.7	4.14	1.54
331-399	51	5.24	3.58	75.7	49.3	577.5	89.0	4.28	1.86
MORE THAN 399	35	5.04	4.48	67.8	53.7	661.6	86.0	5.33	1.98
ALL VEHICLES	170	5.48	4.76	64.7	44.6	586.0	127.5	4.38	1.79

TABLE 5B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. ENGINE DISPLACEMENT (CUBIC INCHES)

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
LESS THAN 251	38	4.52	3.96	52.6	39.4	344.4	56.4	3.13	1.68
251-330	45	5.58	3.06	62.4	38.0	487.7	49.3	4.40	1.64
331-399	52	5.71	5.93	63.1	24.4	545.3	82.8	4.54	1.75
MORE THAN 399	35	4.45	4.56	55.6	35.3	643.0	107.5	5.08	1.58
ALL VEHICLES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 6A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE INERTIA WEIGHT (LBS)

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	8	7.49	5.34	89.6	30.6	288.5	89.3	1.78	1.05
2001-2500	12	4.48	1.14	65.8	25.2	332.8	45.1	2.35	1.20
2501-3000	24	7.86	7.12	94.1	47.9	396.6	74.1	2.27	1.10
3001-3500	44	7.71	5.57	107.0	47.5	512.4	102.5	2.57	1.12
3501-4000	40	9.49	6.39	140.3	67.9	540.5	78.9	2.69	1.30
4001-4500	35	7.65	4.85	117.8	49.7	638.1	86.5	3.50	1.48
4501-5000	6	5.71	1.77	136.8	42.7	712.6	123.2	2.84	1.60
5001-5500	1	6.32	0.00	95.8	0.0	636.6	0.0	4.89	0.00
ALL VEHICLES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 6A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE INERTIA WEIGHT (LBS)

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	12	5.53	5.53	51.7	38.4	323.7	39.9	3.30	0.98
2001-2500	11	3.84	3.06	44.8	39.5	371.2	53.7	2.86	1.18
2501-3000	23	5.69	3.28	61.4	31.5	448.3	92.8	3.73	1.38
3001-3500	35	5.84	2.73	84.2	51.9	543.2	95.8	4.01	1.56
3501-4000	50	7.95	7.69	89.6	56.7	562.0	90.4	4.27	1.83
4001-4500	27	6.13	5.50	91.0	72.1	657.8	77.9	4.70	1.98
4501-5000	12	3.86	1.68	58.2	31.2	751.6	66.5	6.24	1.88
5001-5500	0								
ALL VEHICLES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 6A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. VEHICLE INERTIA WEIGHT (LBS)

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	11	5.36	3.02	67.5	42.4	299.8	55.0	2.11	0.90
2001-2500	11	3.66	2.33	45.1	29.2	346.0	34.8	2.79	1.17
2501-3000	18	5.58	5.35	62.8	45.0	405.7	57.1	3.85	1.55
3001-3500	28	4.62	1.90	59.4	26.3	506.4	55.9	4.07	1.50
3501-4000	56	6.66	4.92	77.3	42.0	522.9	79.3	4.26	1.51
4001-4500	36	6.31	7.05	74.6	35.1	617.9	86.2	5.03	1.79
4501-5000	7	2.91	1.34	32.9	17.1	766.6	128.0	5.67	1.89
5001-5500	3	2.46	0.42	36.4	10.7	766.8	45.0	5.62	0.68
ALL VEHICLES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 6B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. VEHICLE INERTIA WEIGHT (LBS)

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	8	6.95	5.36	83.7	33.1	280.5	83.8	1.72	1.04
2001-2500	12	3.90	1.00	58.7	22.9	321.7	43.5	2.30	1.17
2501-3000	24	6.92	6.26	85.3	46.5	382.8	70.9	2.33	1.15
3001-3500	44	6.84	5.32	95.2	47.3	492.5	96.6	2.61	1.20
3501-4000	40	8.29	5.85	121.1	59.2	521.1	68.9	2.79	1.27
4001-4500	35	6.55	3.11	102.7	42.6	618.7	82.1	3.67	1.52
4501-5000	6	4.87	1.27	111.2	27.5	692.3	113.3	3.08	1.59
5001-5500	1	5.85	0.00	94.4	0.0	608.1	0.0	4.65	0.00
ALL VEHICLES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 6B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. VEHICLE INERTIA WEIGHT (LBS)

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
1501-2000	12	5.44	5.70	47.6	38.3	318.6	39.3	3.19	0.99
2001-2500	11	3.40	2.66	37.0	29.9	366.8	60.1	2.88	1.15
2501-3000	23	5.02	3.08	52.7	30.6	440.1	87.5	3.89	1.57
3001-3500	35	5.28	2.42	72.9	49.6	525.1	86.5	4.12	1.57
3501-4000	50	6.77	6.62	73.6	42.5	544.4	79.8	4.46	1.72
4001-4500	27	5.54	4.90	73.9	56.2	635.3	67.7	4.88	1.85
4501-5000	12	3.30	1.34	48.2	28.1	724.7	75.4	6.32	2.05
5001-5500	0								
ALL VEHICLES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79

TABLE 6B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. VEHICLE INERTIA WEIGHT (LBS)

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
1501-2000	11	4.88	2.73	62.7	41.1	295.0	55.0	2.01	0.87
2001-2500	11	3.33	2.05	40.6	27.6	342.7	35.5	2.85	1.20
2501-3000	18	5.12	5.08	55.4	44.1	398.1	58.8	3.91	1.64
3001-3500	28	4.23	1.67	52.2	23.3	496.6	55.6	4.19	1.51
3501-4000	56	6.03	4.55	67.3	34.3	511.9	75.5	4.39	1.51
4001-4500	36	5.85	6.73	65.6	33.6	602.4	81.2	5.16	1.88
4501-5000	7	2.71	1.26	28.8	14.5	745.6	110.3	5.84	2.07
5001-5500	3	2.42	0.72	36.1	20.0	745.7	45.3	5.64	0.97
ALL VEHICLES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 7A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. TRANSMISSION TYPE

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AUTOMATIC	138	8.02	5.99	117.4	56.8	551.2	115.4	2.90	1.36
MANUAL	32	6.94	3.81	91.2	41.0	349.2	97.8	1.93	0.86
BOTH TYPES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 7A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. TRANSMISSION TYPE

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AUTOMATIC	136	6.26	5.64	80.9	56.6	585.5	113.9	4.41	1.84
MANUAL	34	5.96	4.37	61.9	39.4	368.9	62.9	3.33	1.30
BOTH TYPES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 7A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. TRANSMISSION TYPE

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AUTOMATIC	148	5.68	5.09	68.3	38.3	542.1	117.7	4.42	1.67
MANUAL	22	5.27	3.27	57.9	37.7	343.0	85.5	2.68	1.24
BOTH TYPES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 7B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. TRANSMISSION TYPE

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AUTOMATIC	138	7.00	5.25	102.3	50.3	532.0	110.6	3.00	1.39
MANUAL	32	6.21	3.70	84.3	41.6	337.5	88.9	1.90	0.86
BOTH TYPES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 7B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. TRANSMISSION TYPE

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AUTOMATIC	136	5.47	4.89	67.3	46.3	566.1	106.0	4.57	1.81
MANUAL	34	5.49	4.26	54.4	35.9	365.7	64.7	3.32	1.31
BOTH TYPES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79

TABLE 7B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. TRANSMISSION TYPE

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
AUTOMATIC	148	5.21	4.78	60.1	33.8	529.9	112.4	4.54	1.72
MANUAL	22	4.79	2.98	51.8	36.3	339.4	87.5	2.69	1.36
BOTH TYPES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 8A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. NUMBER OF CARBURETOR VENTURIS

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FOUR BARREL	41	7.63	5.57	118.8	48.2	604.3	119.4	2.81	1.36
TWO BARREL	93	8.39	6.27	116.7	59.6	540.3	102.1	2.87	1.32
ONE BARREL	32	6.84	3.70	98.6	46.6	336.5	68.4	2.07	1.14
FUEL INJECTION	4	4.42	1.43	61.9	38.1	360.1	32.5	3.35	1.65
ALL TYPES	170	7.82	5.65	112.5	55.0	513.1	137.2	2.72	1.33

TABLE 8A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. NUMBER OF CARBURETOR VENTURIS

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FOUR BARREL	38	6.48	4.94	89.2	59.1	633.5	119.0	4.31	2.18
TWO BARREL	97	6.43	5.99	80.0	55.3	566.6	109.0	4.39	1.72
ONE BARREL	34	5.28	4.03	56.9	37.7	375.7	65.9	3.48	1.36
FUEL INJECTION	1	3.58	0.00	22.6	0.0	361.1	0.0	4.96	0.00
ALL TYPES	170	6.20	5.40	77.1	54.0	542.2	136.7	4.19	1.80

TABLE 8A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. NUMBER OF CARBURETOR VENTURIS

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FOUR BARREL	30	5.43	3.45	77.0	46.5	623.5	143.7	4.49	1.72
TWO BARREL	107	5.83	5.38	66.4	34.6	537.2	94.1	4.41	1.64
ONE BARREL	32	5.26	4.41	61.1	40.8	350.5	62.6	3.25	1.74
FUEL INJECTION	1	2.39	0.00	17.5	0.0	378.2	0.0	2.76	0.00
ALL TYPES	170	5.63	4.89	67.0	38.3	516.3	132.1	4.19	1.72

TABLE 8B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. NUMBER OF CARBURETOR VENTURIS

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
FOUR BARREL	41	6.73	4.83	104.2	40.8	582.1	114.4	2.94	1.46
TWO BARREL	93	7.33	5.55	101.0	53.0	522.1	96.9	2.96	1.32
ONE BARREL	32	6.03	3.44	91.2	47.6	325.4	64.5	2.08	1.20
FUEL INJECTION	4	3.72	1.15	56.7	34.4	347.9	29.8	3.26	1.61
ALL TYPES	170	6.86	5.00	98.9	49.2	495.4	131.1	2.80	1.37

TABLE 8B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
VS. NUMBER OF CARBURETOR VENTURIS

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FOUR BARREL	38	5.79	4.73	75.4	50.2	612.8	111.4	4.42	2.08
TWO BARREL	97	5.59	5.05	66.5	44.3	548.2	100.0	4.54	1.71
ONE BARREL	34	4.86	3.96	49.1	34.4	370.7	66.7	3.57	1.53
FUEL INJECTION	1	2.88	0.00	17.5	0.0	358.5	0.0	4.66	0.00
ALL TYPES	170	5.48	4.76	64.7	44.6	526.0	127.5	4.32	1.79

TABLE 8B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE VS. NUMBER OF CARBURETOR VENTURIS

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FOUR BARREL	30	5.02	3.18	67.6	40.0	606.7	135.6	4.65	1.73
TWO BARREL	107	5.32	5.05	58.2	29.8	526.2	89.9	4.53	1.70
ONE BARREL	32	4.82	4.16	55.2	40.9	344.3	62.3	3.27	1.80
FUEL INJECTION	1	1.96	0.00	14.6	0.0	377.2	0.0	2.49	0.00
ALL TYPES	170	5.15	4.58	59.0	34.2	505.3	126.7	4.30	1.79

TABLE 9A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
REPLICATE TESTING USING PAIRED "T" TEST

DENVER

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
FIRST TEST	10	8.52	5.14	133.8	63.7	530.1	136.6	2.55	1.41
SECOND TEST	10	8.72	5.56	135.0	65.7	526.2	124.3	2.51	1.49
BETWEEN TESTS (PAIRED "T")	10	0.20	0.70	1.2	10.8	-3.9	27.9	-0.04	0.30

TABLE 9A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
REPLICATE TESTING USING PAIRED "T" TEST

HOUSTON

1972 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FIRST TEST	10	4.60	1.91	70.1	48.7	622.5	103.9	4.21	1.68
SECOND TEST	10	4.70	1.64	67.0	45.4	615.0	103.6	4.32	1.22
BETWEEN TESTS (PAIRED "T")	10	0.09	0.51	-3.1	13.4	-7.5	29.3	0.11	0.83

TABLE 9A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE REPLICATE TESTING USING PAIRED "T" TEST

CHICAGO

1972 FEDERAL TEST PROCEDURE

	# OF VEH.	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
FIRST TEST	10	4.37	1.99	65.2	32.4	564.4	133.7	4.84	1.21
SECOND TEST	10	4.04	1.54	59.0	23.9	550.0	136.7	4.80	1.18
BETWEEN TESTS (PAIRED "T")	10	-0.33	0.54	-6.2	11.8	-14.4	17.1	-0.04	0.45

TABLE 9B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
REPLICATE TESTING USING PAIRED "T" TEST

DENVER

1975 FEDERAL TEST PROCEDURE

	# OF	HC		CO		CO2		NOXC	
	VEH.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FIRST TEST	10	7.49	4.46	122.3	61.2	502.0	117.1	2.49	1.30
SECOND TEST	10	7.34	4.23	117.5	59.8	503.1	112.8	2.52	1.38
BETWEEN TESTS (PAIRED "T")	10	-0.16	0.46	-4.9	11.7	1.1	20.7	0.03	0.26

TABLE 9B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE
REPLICATE TESTING USING PAIRED "T" TEST

HOUSTON

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC		CO		CO2		NOXC	
		MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.
FIRST TEST	10	4.18	1.60	61.4	44.2	598.1	92.1	4.17	1.52
SECOND TEST	10	4.20	1.54	58.1	42.6	591.6	90.2	4.33	1.18
BETWEEN TESTS (PAIRED "T")	10	0.02	0.36	-3.3	12.9	-6.4	25.1	0.16	0.70

TABLE 9B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE REPLICATE TESTING USING PAIRED "T" TEST

CHICAGO

1975 FEDERAL TEST PROCEDURE

	# OF VEH.	HC MEAN	HC S.D.	CO MEAN	CO S.D.	CO2 MEAN	CO2 S.D.	NOXC MEAN	NOXC S.D.
FIRST TEST	10	3.90	1.72	55.2	29.9	553.7	128.0	5.06	1.33
SECOND TEST	10	3.63	1.36	50.4	23.1	539.5	130.1	4.96	1.22
BETWEEN TESTS (PAIRED "T")	10	-0.27	0.41	-4.8	9.3	-14.2	13.5	-0.11	0.37

TABLE 10A

VEHICLES MEETING 1972 FEDERAL STANDARDS

DENVER

1972 FEDERAL TEST PROCEDURE

	HC <3.4 GM/MI		CO <39 GM/MI		BOTH HC AND CO <3.4 AND <39 GM/MI	
	NO.	%	NO.	%	NO.	%
AMC	1	20.0	0	0.0	0	0.0
BUICK	1	8.3	0	0.0	0	0.0
CADILLAC	0	0.0	0	0.0	0	0.0
CHEVROLET	2	5.1	1	2.6	0	0.0
CHRYSLER	0	0.0	0	0.0	0	0.0
DATSUN	0	0.0	1	50.0	0	0.0
DODGE	0	0.0	0	0.0	0	0.0
FORD	0	0.0	0	0.0	0	0.0
LINCOLN	0	0.0	0	0.0	0	0.0
MERCURY	0	0.0	0	0.0	0	0.0
OLDSMOBILE	0	0.0	1	9.1	0	0.0
OPEL	1	100.0	0	0.0	0	0.0
PLYMOUTH	1	8.3	0	0.0	0	0.0
PONTIAC	0	0.0	0	0.0	0	0.0
TOYOTA	0	0.0	0	0.0	0	0.0
VOLKSWAGEN	1	10.0	2	20.0	1	10.0
1966	0	0.0	0	0.0	0	0.0
1967	0	0.0	0	0.0	0	0.0
1968	0	0.0	0	0.0	0	0.0
1969	1	4.5	0	0.0	0	0.0
1970	0	0.0	0	0.0	0	0.0
1971	1	3.3	2	6.7	0	0.0
1972	5	14.3	3	8.6	1	2.9
ALL VEHICLES	7	4.1	5	2.9	1	0.6

TABLE 10A

VEHICLES MEETING 1972 FEDERAL STANDARDS

HOUSTON

1972 FEDERAL TEST PROCEDURE

	HC <3.4 GM/MI		CO <39 GM/MI		BOTH HC AND CO <3.4 AND <39 GM/MI	
	NO.	%	NO.	%	NO.	%
AMC	1	20.0	1	20.0	1	20.0
BUICK	4	33.3	3	25.0	3	25.0
CADILLAC	1	25.0	1	25.0	1	25.0
CHEVROLET	7	17.9	6	15.4	3	7.7
CHRYSLER	0	0.0	0	0.0	0	0.0
DATSUN	2	100.0	2	100.0	2	100.0
DODGE	0	0.0	3	30.0	0	0.0
FORD	7	20.0	9	25.7	3	8.6
LINCOLN	0	0.0	0	0.0	0	0.0
MERCURY	1	14.3	2	28.6	1	14.3
OLDSMOBILE	1	9.1	1	9.1	1	9.1
OPEL	0	0.0	0	0.0	0	0.0
PLYMOUTH	3	25.0	2	16.7	2	16.7
PONTIAC	3	21.4	4	28.6	3	21.4
TOYOTA	2	66.7	3	100.0	2	66.7
VOLKSWAGEN	2	20.0	1	10.0	0	0.0
1966	0	0.0	0	0.0	0	0.0
1967	0	0.0	0	0.0	0	0.0
1968	0	0.0	3	14.3	0	0.0
1969	2	9.1	2	9.1	1	4.5
1970	5	18.5	7	25.9	3	11.1
1971	10	33.3	8	26.7	6	20.0
1972	17	48.6	18	51.4	12	34.3
ALL VEHICLES	34	20.0	38	22.4	22	12.9

TABLE 10A

VEHICLES MEETING 1972 FEDERAL STANDARDS

CHICAGO

1972 FEDERAL TEST PROCEDURE

	HC <3.4 GM/MI		CO <39 GM/MI		BOTH HC AND CO <3.4 AND <39 GM/MI	
	NO.	%	NO.	%	NO.	%
AMC	1	20.0	0	0.0	0	0.0
BUICK	4	33.3	2	16.7	2	16.7
CADILLAC	3	75.0	2	50.0	2	50.0
CHEVROLET	10	25.6	5	12.8	4	10.3
CHRYSLER	0	0.0	1	25.0	0	0.0
DATSUN	2	100.0	2	100.0	2	100.0
DODGE	2	20.0	2	20.0	1	10.0
FORD	13	37.1	8	22.9	6	17.1
LINCOLN	1	100.0	0	0.0	0	0.0
MERCURY	2	28.6	2	28.6	2	28.6
OLDSMOBILE	3	27.3	3	27.3	2	18.2
OPEL	1	100.0	0	0.0	0	0.0
PLYMOUTH	5	41.7	2	16.7	2	16.7
PONTIAC	2	14.3	0	0.0	0	0.0
TOYOTA	2	66.7	2	66.7	2	66.7
VOLKSWAGEN	4	40.0	2	20.0	2	20.0
1966	0	0.0	0	0.0	0	0.0
1967	0	0.0	2	11.1	0	0.0
1968	3	14.3	2	9.5	2	9.5
1969	5	22.7	3	13.6	2	9.1
1970	5	18.5	4	14.8	1	3.7
1971	15	50.0	4	13.3	4	13.3
1972	27	77.1	18	51.4	18	51.4
ALL VEHICLES	55	32.4	33	19.4	27	15.9

TABLE 11

EVAPORATIVE EMISSION TEST RESULTS

DENVER

SHED PROCEDURE

NUMBER OF VEHICLES 20

DIURNAL SOAK:	TIME	60.0 MINUTES
	ENCLOSURE TEMPERATURE	73.4 DEGREES,F.
	INTERNAL TEMPERATURE	83.9 DEGREES,F.
	HC	17.4 GRAMS
HOT SOAK:	TIME	60.0 MINUTES
	ENCLOSURE TEMPERATURE	82.9 DEGREES,F.
	INTERNAL TEMPERATURE	91.9 DEGREES,F.
	HC	14.2 GRAMS
COMBINED LOSSES		31.7 GRAMS

FUEL INSPECTION RESULTS:

REID VAPOR PRESSURE	8.78
HYDROGEN/CARBON RATIO	2.26

FUEL DISTILLATION TEMPERATURES, DEGREES,F.

INITIAL BOILING POINT	85.8
5% EVAPORATED	121.9
10% EVAPORATED	135.7
15% EVAPORATED	148.7
20% EVAPORATED	161.6
30% EVAPORATED	184.4
40% EVAPORATED	201.9
50% EVAPORATED	215.8
90% EVAPORATED	320.9
FINAL BOILING POINT	333.7

AVERAGE DIFFERENCES BETWEEN ORIGINAL AND REPLICATE TESTS

NUMBER OF PAIRS	2
DIURNAL:	-0.4 GRAMS
HOT SOAK:	3.8 GRAMS
COMBINED:	3.5 GRAMS

Legend for Table 12

VEH# - Number assigned to vehicle for test purposes A suffix R indicates a replicate test
TST# - Number assigned to test
DATE - This is the date the test was conducted first two numbers are year, second two are month, last two are day
YR - Model year of vehicle
MAKE - Vehicle make
MODL - Vehicle model
CID - Engine displacement in cubic inches
N - Number of carburetor venturies, 0 - Fuel injection, 1 - 1 barrel, 2 - 2 barrel, 4 - 4 barrel
T - transmission, 1 - Automatic, 3 - 3 speed, 4 - 4 speed
IWT - Inertia weight applied for test
HP - Horsepower, at 50 MPH, applied for test
WB - Wet bulb temperature, degrees Fahrenheit, taken during test
DB - Dry bulb temperature, degrees Fahrenheit, taken during test
BAROM - Barometer pressure, inches of Mercury, taken during test
C - Number of cylinders
A - Designates whether or not air conditioning is present in vehicle Y - yes, N - no
V - Indicates if evaporative emission control is present Y - yes, N - no
X - Indicates if exhaust emission control is present Y - yes, N - no
P - Indicates if PCV is present Y - yes, N - no
ODOM. - Odometer reading
TC - Fuel tank capacity in gallons
IRPM - Idle RPM
S - State of transmission at time idle RPM was read N - neutral, D - drive
DWEL - Dwell in degrees
TIME - Timing in degrees, + indicates before TDC, - indicates after TDC
L - Indicates whether an air conditioning load was simulated during test Y - yes, N - no
E - Indicates whether an evaporative test was performed on the vehicle Y - yes, N - no

TABLE 12

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

DENVER

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0001	2001	721128	69	CADI	DEVI	472	4	1	5000	14.7	48	70	24.76	8	Y	N	Y	Y	057487	26	530	D	31.0	+04.0	Y	N
0002	2002	721128	70	CHEV	NOVA	307	2	1	3500	11.2	54	69	24.79	8	N	N	Y	Y	018854	18	525	D	30.0	+09.0	N	N
0003	2003	721127	70	CHEV	IMPA	350	2	1	4000	13.2	54	69	24.77	8	Y	N	Y	Y	040665	25	450	D	29.0	+08.0	Y	N
0004	2004	721128	69	FORD	GALA	390	2	1	4000	13.2	50	70	24.78	8	Y	N	Y	Y	035600	22	460	D	32.0	+08.0	Y	N
0005	2005	721127	72	OLDS	CUTL	350	2	1	3500	12.3	54	70	24.75	8	Y	Y	Y	Y	009835	20	550	D	28.0	+05.0	Y	Y
0006	2006	721128	69	OLDS	CUTL	350	4	1	3500	12.3	55	68	24.69	8	Y	N	Y	Y	043535	20	540	D	29.0	+06.0	Y	N
0007	2007	721129	70	FORD	MUST	351	2	1	3500	11.2	55	68	24.70	8	Y	N	Y	Y	024205	22	555	D	36.0	+00.0	N	N
0010	2010	721128	68	CHEV	CAME	230	1	1	3500	11.2	54	69	24.64	6	N	N	Y	Y	026377	18	440	D	33.0	+04.0	N	N
0012	2012	721129	70	FORD	MAVE	200	1	1	2750	9.9	52	71	24.68	6	N	N	Y	Y	028013	16	500	D	35.0	-06.0	N	N
0013	2013	721129	70	VOLK	FAST	097	0	1	2500	9.4	51	70	24.70	4	N	N	Y	Y	014263	11	660	D	46.0	+00.0	N	N
0014	2014	721129	66	FORD	GALA	352	2	1	4000	12.0	52	71	24.70	8	Y	N	N	Y	071906	25	440	D	35.0	+06.0	N	N
0015	2015	721129	69	PLYM	FURY	318	2	1	4000	13.2	53	71	24.70	8	Y	N	Y	Y	047330	24	480	D	24.0	+04.0	Y	N
0016	2016	721130	70	PONT	CATA	350	2	1	4500	14.0	56	69	24.75	8	Y	N	Y	Y	059062	26	520	D	34.0	+09.0	Y	N
0017	2017	721130	69	FORD	FAIR	302	2	1	3500	11.2	57	73	24.75	8	N	N	Y	Y	064896	22	650	N	30.0	+05.0	N	N
0018	2018	721130	68	BUIC	ELEC	430	4	1	4500	14.0	54	68	24.65	8	N	N	Y	Y	064639	25	580	D	32.0	+07.0	Y	N
0020	2020	721129	72	FORD	MAVE	200	1	1	3000	10.3	57	73	24.58	6	N	Y	Y	Y	008394	16	580	D	33.0	+05.0	N	Y
0021	2021	721130	70	FORD	GALA	351	2	1	4000	13.2	54	70	24.52	8	Y	N	Y	Y	037237	22	460	D	37.0	+02.0	Y	N
0022	2022	721130	69	CHEV	BELA	350	4	1	4000	13.2	55	71	24.72	8	N	N	Y	Y	023297	25	580	D	33.0	+00.0	Y	N
0024	2024	721130	71	CHEV	STAW	400	2	1	5000	14.7	55	72	24.72	8	N	Y	Y	Y	024707	25	575	D	39.0	+00.0	Y	N
0026	2026	721201	68	PONT	TEMP	350	2	1	4000	13.2	59	69	24.56	8	N	N	Y	Y	047017	20	630	D	28.0	+10.0	Y	N
0027	2027	721201	71	VOLK	SEDA	097	1	4	2000	8.3	55	70	24.59	4	N	Y	Y	Y	001155	13	990	N	58.0	-05.0	N	N
0028	2028	721201	70	BUIC	ELEC	455	4	1	4500	14.0	55	71	24.59	8	Y	N	Y	Y	034774	25	600	D	28.0	+06.0	Y	N
0029	2029	721201	71	CHEV	NOVA	307	2	1	3500	11.2	60	76	24.58	8	N	Y	Y	Y	018204	18	360	D	30.0	+08.0	N	N
0030	2030	721201	72	FORD	LTD	429	4	1	4500	14.0	57	72	24.60	8	Y	Y	Y	Y	008136	22	550	D	31.0	+08.0	Y	Y

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

DENVER

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0031	2031	721201	66	BUIC	WILD	425	4	1	4500	14.0	50	70	24.61	8	Y	N	N	Y	080626	25	500	D	30.0	+04.0	Y	N
0033	2033	721201	66	CHEV	BELA	283	2	1	4000	12.0	51	72	24.61	8	N	N	N	Y	033395	20	580	D	34.0	+06.0	N	N
0034	2034	721201	70	TOYO	CORL	071	1	4	2000	8.3	53	71	24.60	4	N	N	Y	Y	045591	12	710	N	37.0	+06.0	N	N
0035	2035	721201	67	FORD	FAIR	289	2	1	3500	11.2	54	73	24.61	8	Y	N	N	Y	073424	20	510	D	31.0	+04.0	N	N
0038	2038	721202	70	CHEV	IMPA	350	2	1	4000	13.2	53	71	24.53	8	N	N	Y	Y	020673	25	460	D	30.0	+06.0	Y	N
0039	2039	721202	71	CHEV	CHEL	350	2	1	3500	12.3	50	72	24.49	8	Y	Y	Y	Y	029891	25	510	D	30.0	+06.0	Y	N
0041	2041	721202	70	PLYM	FURY	318	2	1	4000	13.2	52	71	24.59	8	Y	N	Y	Y	035950	24	560	D	31.0	+02.0	Y	N
0042	2042	721202	71	VOLK	SQUA	097	0	4	2500	9.4	54	73	24.60	4	N	Y	Y	Y	018484	11	960	N	56.0	-06.0	N	N
0043	2043	721202	71	FORD	TORI	351	2	1	3500	12.3	52	71	24.60	8	Y	Y	Y	Y	019877	22	440	D	31.0	+08.0	Y	N
0044	2044	721202	66	FORD	MUST	289	4	3	3000	10.3	52	71	24.59	8	Y	N	N	Y	053465	16	500	N	35.0	+06.0	N	N
0045	2045	721203	66	CHEV	IMPA	283	4	1	4000	13.2	53	68	24.54	8	Y	N	N	Y	040287	20	520	D	26.0	+05.0	Y	N
0046	2046	721203	70	VOLK	FAST	097	0	4	2500	9.4	47	69	24.56	4	N	N	Y	Y	040236	11	640	D	46.0	-03.0	N	N
0048	2048	721204	67	FORD	COUN	390	2	1	4500	12.7	52	71	24.35	8	N	N	N	Y	064840	25	550	D	29.0	+06.0	N	N
0049	2049	721204	71	CHEV	IMPA	400	2	1	4000	13.2	51	71	24.35	8	Y	Y	Y	Y	018174	25	600	D	29.0	+10.0	Y	N
0051	2051	721204	71	DATS	510	097	2	4	2250	8.8	51	70	24.35	4	N	Y	Y	Y	013050	11	700	D	38.0	+02.5	N	N
0052	2053	721205	70	OLDS	DELT	350	2	1	4500	14.0	53	69	24.35	8	Y	N	Y	Y	071288	25	600	D	29.0	+08.0	Y	N
0052R	2058	721205	70	OLDS	DELT	350	2	1	4500	14.0	52	70	24.67	8	Y	N	Y	Y	071288	25	600	D	29.0	+08.0	Y	N
0054	2055	721206	68	PLYM	FURY	318	2	1	4000	13.2	51	69	24.67	8	N	N	Y	Y	077094	24	700	D	34.0	+02.5	Y	N
0056	2057	721205	71	TOYO	CORL	071	1	4	2000	8.3	52	72	24.67	4	Y	N	Y	Y	036494	12	850	N	54.0	-02.0	N	N
0057	2059	721206	68	FORD	CUST	390	2	1	4000	12.0	51	70	24.42	8	N	N	Y	Y	049517	22	640	D	29.0	+11.0	N	N
0062	2064	721208	69	BUIC	LESA	350	4	1	4500	14.0	52	69	24.46	8	Y	N	Y	Y	035740	25	610	D	31.0	+04.0	Y	N
0063	2065	721209	71	DODG	DART	225	1	1	3000	10.3	51	69	24.46	6	N	Y	Y	Y	012619	18	600	D	48.0	+07.0	N	N
0065	2067	721211	69	PONT	TEMP	350	2	1	3500	12.3	52	72	24.50	8	N	N	Y	Y	023867	22	640	D	29.0	+08.0	Y	N
0066	2068	721211	69	FORD	FAIR	351	4	1	3500	11.2	51	74	24.52	8	N	N	Y	Y	063745	20	480	D	34.0	+08.0	N	N

TABLE 12, CONT'D

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0068	2070	721212	69	PONT	CATA	400	2	1	4500	14.0	51	69	24.56	8	Y	N	Y	Y	057664	26	600	D	29.0	+13.0	Y	N
0069	2071	721212	71	PLYM	SATE	318	2	1	3500	11.2	52	73	24.53	8	N	Y	Y	Y	023045	19	600	D	30.0	+02.5	N	N
0070	2072	721212	66	VOLK	SEDA	078	1	4	2000	8.3	52	72	24.56	4	N	N	N	Y	060705	10	1050	N	36.0	+02.0	N	N
0071	2073	721212	72	CADI	DEVI	472	4	1	5000	14.7	51	71	24.57	8	Y	Y	Y	Y	008382	26	600	D	31.0	+07.0	Y	N
0072	2074	721212	66	CADI	DEVI	429	4	1	5000	14.7	52	72	24.57	8	Y	N	N	Y	059423	26	600	D	26.0	+10.0	Y	N
0073	2075	721214	69	VOLK	SEDA	091	1	4	2000	8.3	53	70	24.69	4	N	N	Y	Y	029612	10	950	N	37.0	+00.0	N	N
0075	2077	721213	68	FORD	MUST	289	2	1	3000	10.3	51	71	24.69	8	N	N	Y	Y	054959	22	600	D	30.0	+06.0	N	N
0076	2078	721213	68	CADI	DEVI	472	4	1	5000	14.7	51	70	24.69	8	Y	N	Y	Y	040055	26	610	D	31.0	+05.0	Y	N
0077	2079	721214	68	CHEV	IMPA	327	4	1	4000	13.2	51	69	24.82	8	Y	N	Y	Y	040082	25	600	D	30.0	+02.0	Y	N
0077R	2084	721214	68	CHEV	IMPA	327	4	1	4000	13.2	50	70	24.99	8	Y	N	Y	Y	040082	25	590	D	30.0	+02.0	Y	N
0078	2080	721214	67	PLYM	BELV	318	2	1	3500	11.2	51	70	24.80	8	N	N	N	Y	033673	22	600	D	27.0	+07.0	N	N
0078R	2085	721214	67	PLYM	BELV	318	2	1	3500	11.2	50	69	24.99	8	N	N	N	Y	033673	22	600	D	27.0	+07.0	N	N
0079	2081	721214	66	PONT	TEMP	326	2	1	3500	11.2	51	69	24.87	8	N	N	N	Y	040116	22	600	D	30.0	+06.0	N	N
0080	2082	721214	67	VOLK	SEDA	091	1	4	2000	8.3	51	70	24.87	4	N	N	N	Y	065262	10	960	N	39.0	+07.0	N	N
0081	2083	721215	72	CHRY	NEWP	400	2	1	4500	14.0	50	69	24.99	8	Y	Y	Y	Y	044557	24	490	D	29.0	+10.0	Y	N
0082	2086	721215	66	PONT	BONN	389	4	1	4500	14.0	51	70	24.99	8	Y	N	N	Y	058648	26	600	D	29.0	+10.0	Y	N
0083	2087	721215	68	PONT	CATA	400	2	1	4500	14.0	51	70	24.99	8	N	N	Y	Y	047316	26	670	D	25.0	+13.0	Y	N
0084	2088	721216	72	VOLK	SEDA	097	1	4	2000	8.3	52	71	24.87	4	N	Y	Y	Y	004917	10	1000	N	56.0	+00.0	N	N
0086	2090	721216	70	BUIC	SKYL	350	4	1	3500	12.3	50	69	24.87	8	Y	N	Y	Y	022367	20	540	D	30.0	+00.0	Y	N
0087	2091	721216	71	MERC	COUG	351	2	1	3500	12.3	50	71	24.83	8	Y	Y	Y	Y	007328	22	680	D	30.0	+12.0	Y	N
0089	2093	721218	69	FORD	GALA	302	2	1	4000	13.2	49	70	24.75	8	Y	N	Y	Y	049611	22	560	D	27.0	+10.0	Y	N
0091	2095	721218	70	FORD	FAIR	302	2	1	3500	12.3	51	71	24.75	8	Y	N	Y	Y	020490	20	540	D	27.0	+09.0	Y	N
0092	2096	721217	71	CHEV	CHEL	350	2	1	3500	12.3	52	70	24.76	8	Y	Y	Y	Y	012265	25	600	D	29.0	+07.0	Y	N
0094	2099	721219	72	CHEV	IMPA	400	2	1	4500	14.0	50	69	24.53	8	Y	Y	Y	Y	018174	25	720	D	29.0	+04.0	Y	N

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0095	2100	721219	69	CHEV	CHEL	350	2	1	4000	13.2	51	71	24.53	8	Y	N	Y	Y	063004	25	480	D	29.0	+00.0	Y	N
0096	2101	721219	71	OLDS	CUTL	350	2	1	4000	13.2	51	70	24.53	8	Y	Y	Y	Y	028003	20	680	D	29.0	+11.0	Y	N
0098	2103	721219	72	MERC	MONR	351	2	1	4500	14.0	57	69	24.71	8	Y	Y	Y	Y	022683	25	580	D	28.0	+06.0	Y	Y
0100	2105	721221	72	BUIC	RIVI	455	4	1	4500	14.0	49	70	24.63	8	Y	Y	Y	Y	009506	25	720	D	29.0	+06.0	Y	N
0102	2107	721221	72	FORD	TORI	351	2	1	4000	13.2	57	70	24.61	8	Y	Y	Y	Y	012754	23	520	D	30.0	+05.0	Y	Y
0103	2108	721221	70	FORD	MAVE	250	1	1	2750	9.9	51	70	24.55	6	N	N	Y	Y	028149	16	510	D	38.0	+03.0	N	N
0105	2110	721221	70	DODG	DART	318	2	1	3500	11.2	51	71	24.55	8	Y	N	Y	Y	011676	18	580	D	31.0	+05.0	N	N
0107	2113	721226	71	BUIC	SKYL	350	4	1	3500	12.3	51	71	24.80	8	Y	Y	Y	Y	019078	20	500	D	29.0	+07.0	Y	N
0108	2114	721226	70	DODG	POLA	383	2	1	4500	14.0	50	70	24.80	8	Y	N	Y	Y	044658	24	600	D	29.0	+15.0	Y	N
0109	2115	721226	71	OPEL	1900	116	2	4	2250	8.8	51	71	24.80	4	N	Y	Y	Y	007245	11	920	N	38.0	+06.0	N	N
0110	2116	721227	72	OLDS	DELT	455	4	1	4500	14.0	58	68	24.60	8	Y	Y	Y	Y	022319	23	625	D	28.0	+13.0	Y	Y
0111	2117	721227	69	BUIC	RIVE	430	4	1	4500	14.0	53	74	24.49	8	N	N	Y	Y	022609	21	480	D	35.0	-04.0	Y	N
0112	2118	721227	72	RAMB	GREM	258	1	1	2750	9.9	57	70	24.50	6	N	Y	Y	Y	016438	21	610	D	40.0	+00.0	N	N
0113	2119	721227	70	PLYM	BARA	225	2	3	3000	10.3	52	72	24.50	6	N	N	Y	Y	029691	18	680	N	34.0	+15.0	N	N
0114	2120	721228	72	PLYM	DUST	318	2	1	3500	12.3	56	71	24.11	8	Y	Y	Y	Y	009333	16	580	D	30.0	-03.0	Y	Y
0116	2122	721228	71	FORD	STAW	429	2	1	4500	14.0	52	72	24.13	8	Y	Y	Y	Y	000238	23	510	D	31.0	+02.0	Y	N
0117	2123	721228	67	CHRY	NEWP	383	2	1	4000	13.2	51	70	24.13	8	Y	N	Y	Y	095824	24	810	D	26.0	+12.0	Y	N
0118	2124	721229	71	FORD	TORI	302	2	1	3500	12.3	57	68	24.20	8	N	Y	Y	Y	011754	18	490	D	33.0	+03.0	Y	N
0119	2125	721229	67	FORD	MUST	289	2	1	3000	10.3	55	69	24.24	8	N	N	N	Y	054899	16	550	D	30.0	+00.0	N	N
0120	2126	721229	72	FORD	PINT	122	2	4	2250	8.8	55	69	24.32	4	N	Y	Y	Y	015072	11	440	N	35.0	+00.0	N	Y
0121	2127	721229	71	CHEV	MONT	350	4	1	4000	13.2	49	69	24.38	8	Y	Y	Y	Y	026172	19	620	D	30.0	+08.0	Y	N
0123	2129	721229	72	FORD	STAW	400	2	1	4500	14.0	50	70	24.39	8	Y	Y	Y	Y	017181	21	605	D	28.0	+06.0	Y	N
0124	2130	730104	66	RAMB	CLAS	232	1	1	3500	11.2	50	68	24.40	6	Y	N	N	Y	048032	16	450	D	29.0	+06.0	N	N
0125	2131	730104	68	CHRY	NEWY	440	4	1	4500	14.0	51	71	24.48	8	Y	N	Y	Y	041501	24	610	D	29.0	+05.0	Y	N

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0126	2132	730104	68	VOLK	SEDA	091	1	4	2000	8.3	50	71	24.48	4	N	N	Y	Y	056477	11	1000	N	52.0	+00.0	N	N
0127	2133	730104	71	CHEV	VEGA	140	1	4	2500	9.4	55	68	24.52	4	N	Y	Y	Y	013948	11	1050	N	30.0	+14.0	N	N
0128	2134	730104	72	CHEV	MALI	307	2	1	3500	12.3	56	68	24.54	8	Y	Y	Y	Y	007044	19	650	D	30.0	+08.0	Y	Y
0129	2135	730104	67	CHEV	BELA	283	2	1	4000	12.0	48	70	24.55	8	N	N	N	Y	052452	17	460	D	31.0	+08.0	N	N
0130	2136	730104	70	MERC	MARQ	429	2	1	4500	14.0	50	69	26.70	8	N	N	Y	Y	017298	25	480	D	29.0	+04.0	Y	N
0131	2137	730104	67	PONT	CATA	400	2	1	4000	12.0	47	74	24.57	8	N	N	N	Y	071337	26	440	D	26.0	+10.0	N	N
0132	2139	730105	72	CHEV	MONT	350	4	1	3500	12.3	56	70	24.54	8	Y	Y	Y	Y	019526	19	560	D	29.0	+10.0	Y	Y
0133	2140	730105	68	FORD	STAW	428	4	1	4500	14.0	47	69	24.67	8	Y	N	Y	Y	052573	23	520	D	33.0	+07.0	Y	N
0134	2141	730105	69	CHEV	CHEL	230	1	1	3000	10.3	47	70	24.57	6	N	N	Y	Y	063380	20	450	D	33.0	-01.0	N	N
0135	2142	730105	71	BUIC	RIVI	455	4	1	4500	14.0	47	69	24.47	8	Y	Y	Y	Y	019000	24	660	D	28.0	+04.0	Y	N
0136	2143	730106	72	FORD	MAVE	302	2	1	3000	10.3	46	72	24.76	8	N	Y	Y	Y	019782	15	580	D	29.0	+02.0	N	Y
0136R	2146	730106	72	FORD	MAVE	302	2	1	3000	10.3	50	70	24.73	8	N	Y	Y	Y	019782	15	560	D	29.0	+01.0	N	Y
0137	2145	730105	69	OLDS	TORO	455	4	1	4500	14.0	47	70	24.67	8	Y	N	Y	Y	043856	24	600	D	35.0	+04.0	Y	N
0138	2147	730108	68	RAMB	JAVE	343	4	1	3500	11.2	54	68	24.73	8	Y	N	Y	Y	071326	19	500	D	31.0	+00.0	N	N
0139	2148	730107	72	PONT	LEMA	350	2	1	3500	12.3	47	69	24.78	8	Y	Y	Y	Y	007885	23	700	D	31.0	+03.0	Y	N
0140	2149	730107	66	CHEV	CHEL	283	4	1	3000	10.3	47	69	24.78	8	N	N	N	Y	050344	20	480	D	27.0	+08.0	N	N
0141	2150	730107	72	VOLK	SQUA	097	0	1	2500	9.4	47	69	24.78	4	Y	Y	Y	Y	013650	11	710	[illegible]	58.0	+05.0	N	N
0142	2151	730107	67	OLDS	CUTL	330	2	1	3500	12.3	47	70	24.78	8	Y	N	N	Y	052148	20	600	[illegible]	34.0	+10.0	Y	N
0143	2152	730107	68	FORD	FALC	170	1	3	3000	10.3	47	69	24.77	6	N	N	Y	Y	085629	16	760	N	58.0	+02.0	N	N
0144	2153	730109	72	CHEV	MONT	350	2	1	3500	12.3	54	68	24.83	8	Y	Y	Y	Y	012439	19	700	D	30.0	+08.0	Y	Y
0145	2154	730109	72	CHEV	VEGA	140	2	4	2500	9.4	54	68	24.74	4	N	Y	Y	Y	003117	11	705	N	34.0	+10.0	N	Y
0146	2155	730109	72	BUIC	LESA	350	4	1	4500	14.0	48	69	24.72	8	Y	Y	Y	Y	017502	25	615	D	31.0	+02.0	Y	Y
0147	2156	730108	67	MERC	MONR	390	2	1	4000	13.2	47	70	24.50	8	Y	N	N	Y	073640	25	516	D	34.0	+10.0	Y	N
0148	2157	730110	66	OLDS	JETS	330	2	1	4000	13.2	54	68	24.61	8	N	N	N	Y	040923	25	540	D	32.0	+05.0	Y	N

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0149	2158	730110	71	FORD	MAVE	170	1	3	3000	10.3	50	78	24.66	6	N	Y	Y	Y	015656	16	640	N	30.0	+00.0	N	N
0150	2159	730110	70	CHEV	CAPR	400	2	1	4000	13.2	57	70	24.64	8	Y	N	Y	Y	038301	25	620	D	34.0	+04.0	Y	N
0151	2160	730110	68	CHEV	BELA	307	2	1	4000	13.2	46	69	24.67	8	N	N	Y	Y	074136	25	540	D	33.0	+02.0	Y	N
0152	2161	730110	72	PLYM	SUBU	360	2	1	4500	14.0	47	68	24.73	8	Y	Y	Y	Y	023793	21	740	D	30.0	+10.0	Y	N
0152R	2173	730110	72	PLYM	SUBU	360	2	1	4500	14.0	47	69	24.71	8	Y	Y	Y	Y	023793	21	720	D	30.0	+10.0	Y	N
0153	2162	730110	68	FORD	MUST	289	2	1	3000	10.3	47	69	24.74	8	Y	N	Y	Y	055854	16	610	D	31.0	+04.0	N	N
0154	2163	730110	72	DODG	SPOR	360	2	1	4000	12.0	48	70	24.77	8	Y	Y	Y	Y	007024	23	610	D	31.0	+05.0	N	N
0155	2164	730110	68	OLDS	CUTL	350	2	1	3500	12.3	47	69	24.76	8	N	N	Y	Y	002968	20	510	D	34.0	+10.0	Y	N
0156	2165	730111	69	MERC	MONR	390	2	1	4500	14.0	48	68	24.78	8	Y	N	Y	Y	051234	25	640	D	22.0	+08.0	Y	N
0157	2166	730111	67	PONT	FIRE	326	4	4	3500	11.2	50	68	24.79	8	N	N	N	Y	094601	19	1100	N	34.0	+05.0	N	N
0158	2167	730111	70	PONT	STAW	400	2	1	4500	14.0	55	69	24.79	8	Y	N	Y	Y	019287	22	480	D	34.0	+08.0	Y	N
0159	2168	730111	72	FORD	TORI	351	2	1	4000	13.2	58	71	24.76	8	Y	Y	Y	Y	004723	23	680	D	30.0	-05.0	Y	N
0160	2169	730111	71	PLYM	DUST	198	1	3	3000	10.3	48	69	24.72	6	N	Y	Y	Y	021312	17	780	N	38.0	+06.0	N	N
0160R	2178	730111	71	PLYM	DUST	198	1	3	3000	10.3	50	69	24.65	6	N	Y	Y	Y	021312	17	640	N	40.0	+06.0	N	N
0161	2170	730111	70	OLDS	DELT	455	2	1	4500	14.0	48	69	24.72	8	Y	N	Y	Y	023016	24	480	D	31.0	+08.0	Y	N
0163	2172	730111	70	CHEV	NOVA	250	1	1	3000	10.3	47	68	24.73	6	N	N	Y	Y	055711	18	550	D	34.0	+00.0	N	N
0163R	2180	730111	70	CHEV	NOVA	250	1	1	3000	10.3	48	69	24.65	6	N	N	Y	Y	055711	18	540	D	34.0	+00.0	N	N
0164	2174	730112	68	MERC	COUG	302	2	1	3500	11.2	58	72	24.67	8	N	N	Y	Y	040784	17	560	D	32.0	+05.0	N	N
0165	2175	730112	72	CHEV	MONT	350	2	1	4000	13.2	58	71	24.67	8	N	Y	Y	Y	010158	19	600	D	30.0	+08.0	Y	N
0166	2176	730112	71	DODG	CORO	383	4	1	4000	13.2	60	68	24.64	8	Y	Y	Y	Y	016766	21	600	N	27.0	+03.0	Y	N
0166R	2187	730112	71	DODG	CORO	383	4	1	4000	13.2	51	69	24.80	8	Y	Y	Y	Y	016766	21	610	D	27.0	+04.0	Y	N
0167	2177	730112	71	FORD	PINT	098	1	4	2250	8.8	50	68	24.63	4	N	Y	Y	Y	015948	11	1100	N	49.0	+15.0	N	N
0168	2179	730112	69	CHEV	MALI	307	2	1	3500	11.2	50	69	24.65	8	N	N	Y	Y	040689	20	610	D	37.0	+10.0	N	N
0169	2181	730112	72	CHEV	IMPA	454	4	1	4500	14.0	49	69	24.65	8	Y	Y	Y	Y	031237	23	460	D	27.0	+08.0	Y	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0170	2182	730113	68	DODG	POLA	318	2	1	4000	13.2	52	77	24.77	8	N	N	Y	Y	062061	24	520	D	27.0	+03.0	Y	N
0171	2183	730113	71	FORD	TORI	351	2	1	3500	12.3	48	69	24.78	8	N	Y	Y	Y	014802	20	500	D	33.0	+08.0	Y	N
0172	2184	730113	68	CHEV	IMPA	307	2	1	4000	13.2	53	75	24.81	8	Y	N	Y	Y	067702	25	660	D	30.0	+06.0	Y	N
0173	2185	730112	65	FORD	MUST	200	1	3	3500	11.2	50	69	24.77	6	N	N	Y	Y	042320	16	600	N	40.0	+04.0	N	N
0174	2186	730113	69	DODG	CORN	383	4	1	3500	11.2	50	70	28.00	8	Y	N	Y	Y	049797	21	640	D	35.0	+02.5	N	N
0175	2188	730113	70	FORD	MUST	302	2	1	3000	10.3	51	69	24.80	8	N	N	Y	Y	013577	22	560	D	31.0	+05.0	N	N
0176	2187	730113	69	CHEV	CHEL	307	2	3	3000	10.3	51	69	24.81	8	N	N	Y	Y	054733	20	490	N	20.0	+10.0	N	N
0176R	2190	730113	69	CHEV	CHEL	307	2	3	3000	10.3	50	72	24.83	8	N	N	Y	Y	054733	20	490	N	20.0	+10.0	N	N
0177	2191	730115	71	PONT	LEMA	350	2	1	3500	12.3	56	68	24.83	8	N	Y	Y	Y	017211	20	630	D	30.0	+16.0	Y	N
0178	2192	730115	72	DATS	510	097	2	4	2250	8.8	50	68	24.77	4	N	Y	Y	Y	006101	12	730	N	35.0	+05.0	N	Y
0179	2193	730115	70	CHRY	NEWY	440	4	1	4500	14.0	50	69	24.67	8	Y	N	Y	Y	016535	24	780	D	37.0	+02.5	Y	N
0180	2194	730115	67	CHEV	IMPA	283	2	1	4000	13.2	50	70	24.67	8	Y	N	N	Y	066552	25	580	D	31.0	+10.0	Y	N
0181	2195	730115	68	CHEV	IMPA	396	4	1	4000	13.2	50	69	24.67	8	Y	N	Y	Y	022022	25	570	D	30.0	+06.0	Y	N
0182	2196	730115	67	CHEV	CAME	230	1	1	3500	11.2	50	69	24.67	6	N	N	N	Y	090503	18	570	D	31.0	+02.0	N	N
0183	2197	730116	67	RAMB	RAMB	232	1	1	3000	10.3	50	70	24.41	6	N	N	N	Y	062483	16	560	D	36.0	+06.0	N	N
0184	2198	730116	66	PLYM	FURY	225	1	1	3500	11.2	51	70	24.41	6	N	N	N	Y	075416	25	660	D	43.0	+00.0	N	N
0185	2199	730117	67	BUIC	SPEC	300	2	1	3500	12.3	51	70	24.41	8	N	N	N	Y	043032	20	550	D	41.0	+15.0	Y	N
0186	2210	730517	72	BUIC	ELEC	455	4	1	4500	12.7	60	76	24.74	8	Y	Y	Y	Y	018938	24	740	D	38.0	+06.0	N	Y
0187	2201	730510	67	CHEV	IMPA	283	2	1	4000	12.0	65	78	24.62	8	Y	N	Y	Y	074664	24	480	D	30.0	+07.0	N	N
0188	2209	730511	72	PONT	CATA	400	2	1	4500	12.7	60	79	24.88	8	Y	Y	Y	Y	021424	25	610	D	50.0	+08.0	N	Y
0189	2203	730515	71	LINC	CONT	460	4	1	5500	13.9	61	73	24.94	8	Y	Y	Y	Y	012990	22	620	D	30.0	+06.0	N	N
0190	2204	730515	67	CHEV	BELA	283	2	1	4000	12.0	64	78	24.94	8	Y	N	N	Y	087953	24	460	D	28.0	+08.0	N	N
0191	2205	730515	66	DODG	CORO	383	4	4	3500	11.2	63	78	24.88	8	N	N	N	Y	077464	19	590	N	40.0	+04.0	N	N
0192	2206	730515	66	MERC	MONT	390	2	1	4000	12.0	62	79	24.86	8	Y	N	N	Y	097137	24	460	D	34.0	-02.0	N	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

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DENVER

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0193	2207	730516	71	OLDS	ROYA	455	2	1	4500	12.7	60	70	24.85	8	Y	Y	Y	Y	045551	25	610	D	28.0	+10.0	N	N
0194	2208	730516	69	PLYM	VALI	225	1	1	3000	10.3	60	72	24.85	6	N	N	Y	Y	043979	18	510	D	42.0	+00.0	N	N
0195	2211	730518	72	TOYO	CARI	097	1	4	2500	9.4	61	75	24.73	4	N	Y	Y	Y	004802	13	720	N	50.0	+00.0	N	Y
0196	2212	730522	71	PONT	STAW	455	4	1	5000	13.4	58	68	24.65	8	Y	Y	Y	Y	019957	23	620	D	32.0	+10.0	N	N
0197	2213	730523	72	PLYM	FURY	360	2	1	4000	12.0	58	75	24.60	8	Y	Y	Y	Y	023758	23	780	D	28.0	+10.0	N	Y
0197R	2216	730523	72	PLYM	FURY	360	2	1	4000	12.0	56	70	24.59	8	Y	Y	Y	Y	023758	23	770	D	28.0	+10.0	N	Y
0198	2214	730518	72	DODG	DART	225	1	3	3000	10.3	58	73	24.58	6	N	Y	Y	Y	011618	16	800	N	43.0	+00.0	N	Y
0199	2215	730523	69	FORD	FALC	200	1	3	3000	10.3	55	75	24.60	6	N	N	Y	Y	048106	16	600	N	38.0	+06.0	N	N
0200	2217	730522	66	CHEV	BISC	250	1	3	3500	11.2	62	72	24.65	6	N	N	N	Y	099756	20	840	N	26.0	+00.0	N	N
0201	2218	730601	67	DODG	VAN	225	1	3	3000	10.3	65	78	24.46	6	N	N	N	Y	100000	20	620	N	42.0	+02.0	N	N
0202	2219	730601	70	RAMB	JAVE	390	4	4	3500	11.2	55	72	24.46	8	N	N	Y	Y	042390	19	870	N	32.0	+05.0	N	N
0203	2220	730607	72	CHEV	MONT	350	2	1	4000	12.0	57	79	24.84	8	Y	Y	Y	Y	002523	19	590	D	29.0	+12.0	N	N

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VEHICLE INFORMATION SUMMARY

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HOUSTON

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0301	3001	730223	66	FORD	GALA	390	2	1	4000	12.0	60	78	30.15	8	Y	N	N	Y	075106	25	410	D	28.0	+04.0	N	N
0302	3002	730223	72	CHEV	IMPA	350	2	1	4000	13.2	60	78	30.14	8	Y	Y	Y	Y	004676	24	380	D	30.0	+08.0	Y	N
0303	3003	730223	70	CHEV	IMPA	350	2	1	4000	12.0	58	75	30.20	8	Y	N	Y	Y	023040	25	490	D	31.0	-09.0	N	N
0304	3004	730223	70	OLDS	CUTL	455	4	1	3500	12.3	58	75	30.12	8	Y	N	Y	Y	038074	20	675	D	35.0	+12.0	Y	N
0305	3005	730223	71	CHEV	IMPA	350	2	1	4000	13.2	57	74	30.13	8	Y	Y	Y	Y	029098	24	610	D	28.0	+12.0	Y	N
0306	3006	730223	66	CHEV	PICK	283	2	3	3500	11.2	58	68	30.20	8	Y	N	N	Y	078190	20	560	N	30.0	+00.0	N	N
0307	3007	730223	73	FORD	LTD	429	4	1	4500	14.0	59	75	30.20	8	Y	Y	Y	Y	021679	23	580	D	32.0	+04.0	Y	N
0308	3008	730223	72	OLDS	DELT	350	2	1	4500	14.0	59	72	30.23	8	Y	Y	Y	Y	020215	25	600	D	30.0	+04.0	Y	N
0309	3009	730223	71	CHEV	IMPA	400	2	1	4500	14.0	60	72	30.23	8	Y	Y	Y	Y	030650	23	640	D	32.0	+08.0	Y	N
0310	3010	730223	71	VOLK	SEDA	097	1	4	2250	8.8	61	73	30.23	4	N	Y	Y	Y	029034	11	800	N	44.0	+05.0	N	N
0311	3011	730224	69	RAMB	AMBA	290	2	1	3500	11.2	58	78	30.29	8	N	N	Y	Y	055366	21	600	D	28.0	+04.0	N	N
0312	3012	730224	72	CHEV	IMPA	400	2	1	4500	14.0	58	74	30.26	8	Y	Y	Y	Y	002642	23	330	D	31.0	+06.0	Y	N
0313	3013	730224	66	CHEV	IMPA	283	2	1	4000	12.0	55	72	30.22	8	Y	N	N	Y	058717	20	760	D	46.0	+04.0	N	N
0314	3014	730224	72	FORD	LTD	400	2	1	4500	14.0	56	73	30.19	8	Y	Y	Y	Y	028432	22	600	D	42.0	-10.0	Y	N
0315	3015	730224	66	PONT	CATA	389	2	1	4000	13.2	57	69	30.17	8	Y	N	N	Y	071624	26	610	D	32.0	+04.0	Y	N
0316	3016	730224	70	VOLK	SEDA	097	1	4	2000	8.3	56	69	30.17	4	N	N	Y	Y	056918	11	700	N	60.0	-08.0	N	N
0317	3017	730224	72	BUIC	RIVI	455	4	1	4500	14.0	58	69	30.17	8	Y	Y	Y	Y	013085	24	700	D	30.0	+07.0	Y	N
0318	3018	730224	69	CHEV	MALI	307	2	1	3500	11.2	60	69	30.18	8	Y	N	Y	Y	040436	20	580	D	29.0	+02.0	N	N
0319	3019	730224	72	CHEV	MONT	350	4	1	4000	13.2	61	74	30.21	8	Y	Y	Y	Y	011896	19	600	D	32.0	+06.0	Y	N
0320	3020	730224	66	CHEV	CHE2	194	1	3	3000	10.3	61	73	30.23	6	N	N	N	Y	086135	18	620	N	30.0	+04.0	N	N
0322	3022	730224	71	CHEV	IMPA	350	2	1	4000	13.2	57	68	30.24	8	Y	Y	Y	Y	020587	24	640	D	28.0	+06.0	Y	N
0323	3023	730224	68	CADI	DEVI	472	4	1	5000	14.7	58	68	30.24	8	Y	Y	Y	Y	069971	26	900	D	30.0	+06.0	Y	N
0324	3024	730224	66	PONT	TEMP	326	2	1	3500	11.2	60	68	30.23	8	Y	N	N	Y	006289	20	480	D	32.0	+04.0	N	N
0325	3025	730226	69	CADI	DEVI	472	4	1	5000	14.7	66	83	30.26	8	Y	N	Y	Y	062827	26	760	D	30.0	+05.0	Y	N

TABLE 12, CONT'D

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0326	3026	730226	72	TOYO	CORN	120	2	1	2500	9.4	64	80	30.25	4	Y	Y	Y	Y	009310	12	640	D	54.0	+05.0	N	N
0327	3027	730226	71	FORD	TORI	351	2	1	3500	12.3	65	80	30.34	8	Y	Y	Y	Y	044887	20	540	D	29.0	-04.0	Y	N
0328	3028	730226	71	OLDS	98	455	4	1	5000	14.7	64	78	30.25	8	Y	Y	Y	Y	029114	25	580	D	30.0	+08.0	Y	N
0329	3029	730226	69	FORD	MUST	200	1	1	3000	10.3	61	72	30.25	6	Y	N	Y	Y	042377	20	600	D	32.0	+02.0	N	N
0330	3030	730226	69	OLDS	CUTL	350	2	1	3500	12.3	60	71	30.25	8	Y	N	Y	Y	065313	20	610	D	29.0	+06.0	Y	N
0330R	3037	730226	69	OLDS	CUTL	350	2	1	3500	12.3	58	72	30.42	8	Y	N	Y	Y	065313	20	670	D	29.0	+06.0	Y	N
0331	3031	730226	71	BUIC	ELEC	455	4	1	4500	14.0	62	74	30.30	8	Y	Y	Y	Y	012496	24	700	D	29.0	+04.0	Y	N
0331R	3043	730226	71	BUIC	ELEC	455	4	1	4500	14.0	59	70	30.30	8	Y	Y	Y	Y	012496	24	640	D	30.0	+04.0	Y	N
0332	3032	730226	66	RAMB	ROGU	232	1	3	3000	10.3	61	73	30.32	6	N	N	N	Y	004838	16	800	N	30.0	+08.0	N	N
0333	3033	730226	72	CADI	DEVI	472	4	1	5000	14.7	60	70	30.30	8	Y	Y	Y	Y	031084	27	700	D	32.0	+12.0	Y	N
0334	3034	730226	70	CHRY	NEWY	440	4	1	4500	14.0	60	68	30.32	8	Y	N	Y	Y	031402	24	600	D	30.0	+06.0	Y	N
0335	3035	730226	67	VOLK	SEDA	091	1	4	2000	8.3	54	68	30.33	4	Y	N	N	Y	069195	11	820	N	26.0	+08.0	N	N
0336	3036	730226	71	TOYO	DELU	071	1	3	2000	8.3	68	76	30.47	4	N	Y	Y	Y	026699	12	1000	N	54.0	+05.0	N	N
0337	3038	730226	70	FORD	GALA	351	2	1	4000	12.0	60	76	30.42	8	Y	N	Y	Y	037811	24	660	D	33.0	+04.0	N	N
0338	3039	730227	69	CHEV	CAMA	307	2	3	3500	11.2	60	77	30.42	8	N	N	Y	Y	048162	18	760	N	34.0	+00.0	N	N
0339	3040	730227	71	BUIC	LESA	350	4	1	4500	14.0	60	76	30.42	8	Y	Y	Y	Y	034523	24	620	D	30.0	+04.0	Y	N
0341	3042	730227	72	OLDS	STAW	455	4	1	5000	14.7	60	70	30.28	8	Y	Y	Y	Y	026490	23	620	D	30.0	+08.0	Y	N
0342	3044	730227	69	OLDS	DELT	455	2	1	4000	13.2	60	71	30.30	8	Y	N	Y	Y	034560	26	620	D	31.0	+06.0	Y	N
0343	3045	730227	70	CHEV	CHEL	307	2	1	3500	11.2	60	72	30.33	8	Y	N	Y	Y	095659	20	700	D	31.0	+04.0	Y	N
0344	3046	730227	71	FORD	PINT	097	1	4	2250	8.8	59	69	30.33	4	N	Y	Y	Y	027484	11	560	N	31.0	+04.0	N	N
0346	3048	730227	71	PLYM	SATE	318	2	1	4000	13.2	59	69	30.32	8	Y	Y	Y	Y	026620	21	590	D	29.0	+08.0	Y	N
0347	3049	730228	69	PONT	EXEC	350	2	1	4500	14.0	58	74	30.34	8	Y	N	Y	Y	049018	26	600	D	30.0	-12.0	Y	N
0348	3050	730228	67	PONT	VENT	400	2	1	4000	13.2	61	80	30.37	8	Y	N	N	Y	078021	26	460	D	32.0	-11.0	Y	N
0350	3052	730228	72	FORD	TORI	351	2	1	4000	13.2	56	78	30.32	8	Y	Y	Y	Y	044571	20	610	D	31.0	+04.0	Y	N

TABLE 12, CONT'D

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0351	3053	730228	68	CHEV	CAPR	396	4	1	4000	13.2	58	72	30.29	8	Y	N	Y	Y	039961	25	610	D	31.0	+08.0	Y	N
0353	3055	730228	70	CHEV	IMPA	350	2	1	4000	12.0	56	78	30.23	8	Y	N	Y	Y	028779	25	610	D	26.0	+08.0	N	N
0354	3056	730228	72	PLYM	FURY	360	2	1	4000	13.2	58	68	30.18	8	Y	Y	Y	Y	017864	23	610	D	31.0	+00.0	Y	N
0355	3057	730228	71	CHEV	IMPA	350	2	1	4000	12.0	60	68	30.20	8	Y	Y	Y	Y	022817	26	690	D	31.0	+06.0	N	N
0356	3058	730228	72	PLYM	SATE	318	2	1	3500	11.2	60	70	30.21	8	Y	Y	Y	Y	004888	21	610	D	48.0	+04.0	N	N
0357	3059	730228	67	PLYM	BELV	318	2	1	4000	12.0	60	72	30.19	8	Y	N	N	Y	079270	19	610	D	50.0	+04.0	N	N
0358	3060	730228	72	PONT	CATA	400	2	1	4500	14.0	60	68	30.18	8	Y	Y	Y	Y	017013	26	580	D	29.0	+06.0	Y	N
0359	3061	730228	72	FORD	MUST	302	2	1	3000	10.3	60	68	30.18	8	Y	Y	Y	Y	019758	19	580	D	29.0	+04.0	N	N
0360	3062	730228	68	OLDS	CUTL	350	2	1	3500	12.3	59	68	30.18	8	Y	N	Y	Y	074867	24	560	D	30.0	+00.0	Y	N
0361	3063	730301	72	MERC	MONR	400	2	1	4500	14.0	58	69	30.13	8	Y	Y	Y	Y	024058	22	515	D	28.0	+10.0	Y	N
0362	3064	730301	68	CHEV	BISC	307	2	1	4000	12.0	60	70	30.16	8	Y	N	Y	Y	078653	25	610	D	25.0	+08.0	N	N
0363	3065	730301	72	RAMB	GREM	258	1	1	2500	9.4	61	70	30.15	6	N	Y	Y	Y	008225	21	600	D	33.0	-02.0	N	N
0364	3066	730301	69	PLYM	FURY	318	2	1	4000	13.2	64	69	30.03	8	Y	N	Y	Y	046032	24	610	D	34.0	+04.0	Y	N
0365	3067	730301	72	CHRY	NEWP	400	2	1	4500	14.0	64	73	30.02	8	Y	Y	Y	Y	017234	23	680	D	34.0	+06.0	Y	N
0366	3068	730301	72	FORD	PINT	122	2	4	2500	9.4	63	70	30.02	4	Y	Y	Y	Y	019959	11	810	N	34.0	+06.0	N	N
0367	3069	730301	72	FORD	TORI	351	2	1	4000	13.2	65	71	30.03	8	Y	Y	Y	Y	011725	20	610	D	30.0	+04.0	Y	N
0368	3070	730301	72	DODG	DART	225	1	1	3000	10.3	66	73	30.03	6	Y	Y	Y	Y	022136	16	610	D	38.0	+07.0	N	N
0369	3071	730301	71	DODG	DEMO	225	1	3	3500	11.2	56	72	30.03	6	Y	Y	Y	Y	016291	17	780	N	42.0	+04.0	N	N
0370	3072	730302	68	DODG	POLA	318	2	1	4000	12.0	62	69	30.12	8	Y	N	Y	Y	061622	24	600	N	15.0	-20.0	N	N
0371	3073	730302	69	FORD	FAIR	302	2	1	3500	11.2	65	78	30.14	8	Y	N	Y	Y	036013	20	510	D	27.0	+08.0	N	N
0372	3074	730302	66	OLDS	F85	330	2	1	3500	11.2	62	72	30.13	8	Y	N	N	Y	068486	20	650	D	33.0	+10.0	N	N
0374	3076	730302	68	FORD	MUST	289	2	1	3000	10.3	60	76	30.04	8	Y	N	Y	Y	075158	19	610	D	29.0	+04.0	N	N
0375	3077	730302	70	MERC	MARQ	429	2	1	5000	14.7	60	75	30.03	8	Y	N	Y	Y	045515	22	610	D	34.0	+04.0	Y	N
0576	3078	730302	72	DATS	510	097	2	1	2000	8.3	61	68	30.05	4	Y	Y	Y	Y	007701	12	710	D	40.0	+07.0	N	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

HOUSTON

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0377	3079	730302	67	CHEV	IMPA	283	2	1	4000	13.2	62	68	30.06	8	Y	N	N	Y	069353	16	1100	N	28.0	+02.0	Y	N
0378	3080	730301	69	VOLK	SEDA	091	1	4	2000	8.3	64	70	30.07	4	N	N	Y	Y	048249	11	840	N	48.0	+06.0	N	N
0379	3081	730302	72	FORD	MAVE	302	2	1	3000	10.3	63	70	30.06	8	Y	Y	Y	Y	009133	15	610	D	30.0	+06.0	N	N
0380	3082	730302	67	CHEV	IMPA	327	4	1	4000	12.0	60	68	30.06	8	Y	N	N	Y	053806	24	580	D	34.0	+04.0	N	N
0381	3083	730302	67	CHEV	BELA	283	2	1	4000	12.0	63	72	30.06	8	Y	N	N	Y	092807	24	540	D	29.0	+08.0	N	N
0382	3084	730303	68	CHEV	IMPA	307	2	1	4500	12.7	64	71	30.10	8	Y	N	Y	Y	078823	25	605	D	31.0	+06.0	N	N
0383	3085	730301	72	CHEV	VEGA	140	2	3	2500	9.4	64	72	30.10	4	Y	Y	Y	Y	017757	11	920	N	34.0	+12.0	N	N
0384	3086	730303	70	PONT	CATA	400	2	1	4500	14.0	65	72	30.09	8	Y	N	Y	Y	012660	26	710	D	30.0	+03.0	Y	N
0385	3087	730303	68	MERC	MONG	302	2	1	3500	11.2	68	72	30.06	8	Y	N	Y	Y	081252	20	550	D	30.0	+04.0	N	N
0385R	3101	730303	68	MERC	MONG	302	2	1	3500	11.2	66	70	29.83	8	Y	N	Y	Y	081252	20	580	D	30.0	+04.0	N	N
0386	3088	730303	66	FORD	MUST	200	1	3	2500	9.4	68	74	30.04	6	N	N	N	Y	099448	16	890	N	41.0	-08.0	N	N
0387	3089	730303	69	CHEV	CAPR	350	4	1	4000	13.2	66	71	30.01	8	Y	N	Y	Y	056134	23	620	D	27.0	+02.0	Y	N
0388	3090	730303	66	VOLK	SEDA	078	1	4	2000	8.3	66	72	29.99	4	N	N	N	Y	056340	11	840	N	52.0	+07.5	N	N
0389	3091	730303	71	DODG	CHAR	383	4	1	3500	12.3	65	68	29.95	8	Y	Y	Y	Y	031214	21	780	D	28.0	+06.0	Y	N
0390	3092	730303	69	CHEV	ELCA	350	4	1	4000	13.2	68	75	29.96	8	Y	N	Y	Y	071838	25	500	D	34.0	+04.0	Y	N
0391	3093	730303	71	FORD	MUST	302	2	1	3000	11.3	64	68	29.96	8	Y	Y	Y	Y	016715	20	610	D	29.0	+06.0	Y	N
0392	3094	730303	72	VOLK	SEDA	097	1	4	2000	8.3	66	70	29.95	4	N	Y	Y	Y	005067	11	780	N	38.0	+06.0	N	N
0393	3095	730303	71	CHEV	MALI	307	2	1	3500	11.2	67	71	29.95	8	Y	Y	Y	Y	026761	20	480	D	30.0	+10.0	N	N
0393R	3107	730303	71	CHEV	MALI	307	2	1	3500	11.2	65	72	29.85	8	Y	Y	Y	Y	026761	20	490	D	29.0	+10.0	N	N
0394	3096	730303	67	RAMB	AMER	232	2	3	3000	10.3	68	74	29.93	6	Y	N	N	Y	031435	16	1050	N	34.0	+04.0	N	N
0395	3097	730305	68	CHEV	IMPA	327	4	1	4000	13.2	60	69	29.93	8	Y	N	Y	Y	056444	25	680	D	27.0	+08.0	Y	N
0396	3098	730305	71	OLDS	DELT	350	4	1	5000	14.7	64	71	29.94	8	Y	Y	Y	Y	026698	25	670	D	30.0	+04.0	Y	N
0397	3099	730306	67	BUIC	SPEC	300	2	1	3500	12.3	66	76	29.92	8	Y	N	N	Y	054114	17	740	D	30.0	+05.0	Y	N
0397R	3115	730306	67	BUIC	SPEC	300	2	1	3500	12.3	70	80	29.84	8	Y	N	N	Y	054114	17	720	D	30.0	+05.0	Y	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

HOUSTON

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0398	3100	730306	72	BUIC	SKYL	350	4	1	4000	13.2	68	77	29.89	8	Y	Y	Y	Y	012738	20	680	D	32.0	+04.0	Y	N
0399	3102	730306	68	FORD	GALA	390	2	1	4000	13.2	65	72	29.82	8	Y	N	Y	Y	068580	24	610	D	32.0	+04.0	Y	N
0400	3103	730306	72	CHEV	KING	350	2	1	4500	14.0	67	74	29.82	8	Y	Y	Y	Y	016489	18	580	D	28.0	+04.0	Y	N
0401	3104	730306	70	FORD	TORI	302	2	1	3500	11.2	67	73	29.82	8	Y	Y	Y	Y	047386	20	510	D	29.0	+02.0	N	N
0401R	3119	730306	70	FORD	TORI	302	2	1	3500	11.2	60	68	29.92	8	Y	Y	Y	Y	047386	20	540	D	29.0	+02.0	N	N
0402	3105	730306	71	CHEV	CAPR	402	2	1	5000	14.7	65	70	29.87	8	Y	Y	Y	Y	021536	23	710	D	29.0	+08.0	Y	N
0403	3106	730306	70	PLYM	SATE	318	2	1	3500	12.3	65	70	29.87	8	Y	N	Y	Y	027772	19	590	D	38.0	+04.0	Y	N
0404	3107	730306	70	FORD	MAVE	200	1	3	2500	9.4	55	74	29.85	6	N	N	Y	Y	033950	16	750	N	46.0	+04.0	N	N
0405	3109	730306	70	OLDS	CUTL	350	2	1	4000	13.2	62	68	29.85	8	Y	N	Y	Y	033718	20	610	D	30.0	+10.0	Y	N
0405R	3120	730306	70	OLDS	CUTL	350	2	1	4000	13.2	60	68	29.92	8	Y	N	Y	Y	033718	20	600	D	30.0	+10.0	Y	N
0406	3110	730306	69	PONT	CATA	400	2	1	4500	14.0	66	72	29.81	8	Y	N	Y	Y	034590	25	610	D	30.0	+06.0	Y	N
0407	3111	730306	66	BUIC	LESA	340	4	1	4000	13.2	69	74	29.83	8	Y	N	N	Y	026409	25	670	D	31.0	+05.0	Y	N
0408	3112	730306	70	FORD	FAIR	250	1	1	3500	11.2	70	76	29.84	6	Y	N	Y	Y	053071	20	530	D	27.0	-02.0	N	N
0409	3113	730306	71	MERC	COUG	351	2	1	3500	12.3	69	73	29.83	8	Y	Y	Y	Y	026902	20	660	D	32.0	+06.0	Y	N
0410	3114	730306	67	OLDS	CUTL	330	2	1	3500	12.3	68	76	29.82	8	Y	N	N	Y	036017	25	600	D	31.0	+04.0	Y	N
0412	3117	730306	68	BUIC	ELEC	430	4	1	4500	14.0	66	80	29.84	8	Y	N	Y	Y	054079	25	540	D	34.0	-05.0	Y	N
0413	3118	730307	67	FORD	MUST	289	4	3	3000	10.3	61	70	29.89	8	N	N	N	Y	090241	16	610	N	31.0	+04.0	N	N
0414	3121	730307	56	CADI	DEVI	429	4	1	5000	14.7	61	68	29.95	8	Y	N	N	Y	060904	24	600	D	30.0	+05.0	Y	N
0414R	3133	730307	56	CADI	DEVI	429	4	1	5000	14.7	60	70	29.96	8	Y	N	N	Y	060904	24	600	D	30.0	+05.0	Y	N
0415	3122	730307	69	FORD	FALC	302	2	1	3500	11.2	62	72	29.96	8	Y	N	Y	Y	055451	16	580	D	31.0	+00.0	N	N
0416	3123	730307	71	FORD	GALA	351	2	1	4000	13.2	65	86	30.05	8	Y	Y	Y	Y	028963	23	625	D	32.0	+05.0	Y	N
0417	3124	730307	69	PLYM	VALI	225	1	1	3000	10.3	63	86	30.03	6	N	N	Y	Y	042760	18	570	D	35.0	+08.0	N	N
0418	3125	730307	69	FORD	MUST	351	2	1	3000	11.3	64	85	30.01	8	Y	N	Y	Y	052527	20	540	D	32.0	+04.0	Y	N
0419	3126	730307	67	PONT	TEMP	326	2	1	3500	11.2	64	86	30.00	8	Y	N	N	Y	056214	26	460	D	34.0	+03.0	N	N

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VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0420	3127	730307	70	FORD	GALA	351	2	1	4000	13.2	62	80	30.00	8	Y	N	Y	Y	041973	24	560	D	30.0	+05.0	Y	N
0421	3128	730307	72	CHEV	MALI	307	2	1	3500	11.2	64	79	29.98	8	Y	Y	Y	Y	015512	20	760	D	30.0	+08.0	N	N
0422	3129	730307	66	PLYM	VALI	225	1	1	3000	10.3	63	75	29.96	6	Y	N	N	Y	060665	18	620	D	45.0	+02.0	N	N
0423	3130	730307	71	PONT	SAFA	455	2	1	5000	14.7	63	71	29.96	8	Y	Y	Y	Y	021559	23	640	D	31.0	+10.0	Y	N
0424	3131	730307	69	BUIC	ELEC	430	4	1	4500	14.0	63	74	29.97	8	Y	N	Y	Y	026361	25	680	D	31.0	+09.0	Y	N
0425	3132	730307	69	FORD	STAW	390	2	1	4500	14.0	62	72	29.97	8	Y	N	Y	Y	039533	23	610	D	31.0	+08.0	Y	N
0426	3134	730307	71	PONT	LEMA	350	2	1	3500	12.3	62	71	29.94	8	Y	Y	Y	Y	029440	20	610	D	29.0	+10.0	Y	N
0427	3135	730307	68	PONT	CATA	400	2	1	4000	13.2	62	69	29.91	8	Y	N	Y	Y	074815	26	640	D	25.0	+15.0	Y	N
0428	3136	730308	72	PONT	LEMA	350	2	1	3500	12.3	63	69	29.93	8	Y	Y	Y	Y	011363	20	650	D	28.0	+08.0	Y	N
0428R	3149	730308	72	PONT	LEMA	350	2	1	3500	12.3	70	74	29.96	8	Y	Y	Y	Y	011363	20	750	D	27.0	+09.0	Y	N
0429	3137	730308	68	FORD	FAIR	289	2	1	3500	11.2	66	75	29.94	8	Y	N	Y	Y	058930	20	610	D	27.0	+06.0	N	N
0430	3138	730308	66	FORD	MUST	289	2	3	3000	10.3	70	79	29.93	8	Y	N	N	Y	040748	16	640	N	27.0	+09.0	N	N
0431	3139	730308	70	BUIC	LESA	350	4	1	4000	13.2	70	79	29.92	8	Y	N	Y	Y	034585	25	610	D	34.0	+00.0	Y	N
0432	3141	730308	68	CHRY	NEWP	383	2	1	4000	13.2	71	81	29.89	8	Y	N	Y	Y	065017	22	650	D	30.0	+10.0	Y	N
0434	3142	730308	69	CHEV	NOVA	230	1	3	3000	10.3	71	77	29.90	6	Y	N	Y	Y	035637	18	1000	N	36.0	+06.0	N	N
0435	3143	730308	71	CHEV	VEGA	140	1	3	2500	9.4	72	78	29.89	4	Y	Y	Y	Y	018705	11	880	N	34.0	+02.0	N	N
0436	3144	730308	72	CHEV	PICK	350	4	1	4000	12.0	70	76	29.89	8	Y	Y	Y	Y	019960	22	880	N	31.0	+03.0	N	N
0437	3145	730308	72	BUIC	LIMI	455	4	1	5000	14.7	68	74	29.90	8	Y	Y	Y	Y	014353	25	610	D	31.0	+05.0	Y	N
0437R	3150	730308	72	BUIC	LIMI	455	4	1	5000	14.7	71	78	29.94	8	Y	Y	Y	Y	014353	25	600	D	31.0	+05.0	Y	N
0438	3146	730308	70	PONT	LEMA	350	2	1	3500	12.3	67	72	29.95	8	Y	N	Y	Y	029095	20	620	D	29.0	+08.0	Y	N
0439	3147	730308	66	MERC	COMM	390	2	1	4500	14.0	69	76	29.95	8	Y	N	N	Y	000391	23	640	D	30.0	+04.0	Y	N
0440	3148	730309	67	DODG	DART	225	1	1	3000	10.3	67	70	29.96	6	Y	N	N	Y	091488	18	620	D	38.0	+10.0	N	N
0441	3151	730309	66	CHEV	BELA	283	2	1	4000	12.0	71	76	29.00	8	Y	N	N	Y	063056	20	610	D	27.0	+12.0	N	N
0442	3152	730309	68	FORD	FAIR	200	1	1	3000	10.3	72	81	29.88	6	Y	N	Y	Y	064984	20	480	D	43.0	-04.0	N	N

TABLE 12, CONT'D

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HOUSTON

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0443	3153	730309	67	FORD	FAIR	289	4	3	3000	10.3	70	76	29.86	8	Y	N	N	Y	051162	20	600	N	29.0	+00.0	N	N
0444	3154	730309	70	PLYM	VALI	225	1	3	3000	10.3	68	72	29.82	6	Y	N	Y	Y	069893	18	740	N	40.0	+00.0	N	N
0445	3155	730309	71	FORD	MAVE	200	1	3	2500	9.4	68	73	29.82	6	Y	Y	Y	Y	045284	16	1150	N	34.0	+08.0	N	N
0446	3156	730309	67	FORD	LTD	390	2	1	4000	12.0	69	75	29.82	8	Y	N	Y	Y	080854	24	640	D	31.0	+06.0	N	N
0447	3157	730309	67	CHRY	NEWP	383	2	1	4000	13.2	68	73	29.78	8	Y	N	N	Y	078887	24	600	D	28.0	+08.0	Y	N
0448	3158	730309	70	RAMB	AMBA	304	2	1	4000	12.0	70	77	29.78	8	Y	N	Y	Y	030223	21	610	D	29.0	+04.0	N	N
0449	3159	730310	70	BUIC	ELEC	455	4	1	4500	14.0	72	76	29.74	8	Y	N	Y	Y	031397	25	580	D	32.0	+02.0	Y	N
0450	3160	730310	69	BUIC	LESA	350	4	1	4000	13.2	72	76	29.76	8	Y	N	Y	Y	059005	25	620	D	32.0	+02.0	Y	N
0451	3161	730310	71	VOLK	SEDA	097	1	4	2000	8.3	71	78	29.77	4	Y	Y	Y	Y	015224	11	840	N	54.0	+02.0	N	N
0452	3162	730310	70	VOLK	SEDA	097	1	4	2000	8.3	64	76	29.76	4	N	N	Y	Y	036501	11	980	N	54.0	+00.0	N	N
0453	3163	730310	68	PONT	FIRE	350	4	1	3500	11.2	62	75	29.74	8	Y	N	Y	Y	085936	18	1050	D	32.0	+06.0	N	N
0454	3164	730310	71	PLYM	DUST	198	1	3	3500	11.2	60	78	29.73	6	Y	Y	Y	Y	019417	17	800	N	37.0	+02.5	N	N
0455	3165	730312	72	FORD	COUN	429	4	1	4500	14.0	60	84	30.15	8	Y	Y	Y	Y	013839	21	540	D	28.0	+10.0	Y	N
0456	3166	730312	70	DODG	POLA	318	2	1	4000	12.0	61	84	30.15	8	Y	N	Y	Y	021979	24	600	D	35.0	+05.0	N	N
0457	3167	730312	70	TOYO	CORL	071	1	4	2000	8.3	60	83	30.11	4	Y	N	Y	Y	028675	11	1200	N	54.0	-02.0	N	N
0458	3168	730312	67	CHEV	IMPA	283	2	1	4000	12.0	60	84	30.07	8	N	N	N	Y	039879	24	540	D	31.0	-04.0	N	N
0459	3169	730313	68	PLYM	FURY	318	2	1	4000	12.0	68	71	29.89	8	Y	N	Y	Y	097417	24	600	D	28.0	-10.0	N	N
0460	3170	730313	66	DODG	POLA	383	2	1	4000	13.2	70	74	29.88	8	Y	N	N	Y	100242	25	540	D	30.0	+02.5	Y	N
0461	3171	730313	71	DATS	DELU	097	1	4	2000	8.3	70	75	29.86	4	N	Y	Y	Y	035663	11	800	N	38.0	+20.0	N	N
0462	3172	730313	69	DODG	SUPE	383	4	1	3500	11.2	70	76	29.82	8	Y	N	Y	Y	063540	21	660	D	32.0	+05.0	N	N
0463	3173	730313	69	MERC	MARQ	429	2	1	4500	14.0	70	74	29.81	8	Y	N	Y	Y	064065	24	580	D	30.0	+04.0	Y	N
0464	3174	730314	72	PLYM	FURY	360	2	1	4000	12.0	70	72	29.78	8	Y	Y	Y	Y	012915	23	560	D	38.0	+00.0	N	N
0465	3175	730314	71	LINC	CONT	460	4	1	5000	14.7	71	75	29.83	8	Y	Y	Y	Y	011019	22	610	D	34.0	+08.0	Y	N
0466	3176	730314	72	VOLK	FAST	103	0	4	2750	9.9	71	75	29.84	4	N	Y	Y	Y	005101	11	1000	N	52.0	+05.0	N	N

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HOUSTON

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0467	3177	730314	71	OPEL	CADE	116	2	1	2500	9.4	74	78	29.83	4	Y	Y	Y	Y	022015	11	800	D	54.0	+00.0	N	N
0468	3178	730314	68	CHEV	CAMA	250	1	1	3000	10.3	76	81	29.82	6	N	N	Y	Y	057057	18	600	D	35.0	-04.0	N	N
0469	3179	730314	70	DODG	CORO	383	4	1	4000	13.2	70	78	29.79	8	Y	N	Y	Y	058667	21	580	D	35.0	+00.0	Y	N
0470	3180	730314	72	DODG	POLA	360	4	1	4000	13.2	70	78	29.76	8	Y	Y	Y	Y	017569	23	680	D	34.0	+00.0	Y	N
0471	3181	730315	68	FORD	THUN	429	4	1	4500	14.0	70	72	29.78	8	Y	N	Y	Y	046015	24	720	D	29.0	+08.0	Y	N
0472	3182	730315	67	CHEV	NOVA	194	1	3	3000	10.3	72	74	29.80	6	Y	N	N	Y	071043	18	950	N	36.0	+06.0	N	N
0473	3183	730315	70	FORD	TORI	351	2	1	3500	12.3	71	73	29.80	8	Y	N	Y	Y	050160	20	580	D	30.0	+02.0	Y	N
0474	3184	730316	68	VOLK	SEDA	091	1	4	2000	8.3	74	80	29.94	4	N	N	Y	Y	042731	11	440	N	34.0	+07.5	N	N
0475	3185	730316	72	CHEV	CAPR	402	2	1	4500	14.0	60	73	29.96	8	Y	Y	Y	Y	016243	24	580	D	30.0	-12.0	Y	N
0476	3186	730316	70	CHEV	KING	454	2	1	4500	14.0	61	70	29.96	8	Y	N	Y	Y	025716	22	760	D	32.0	+12.0	Y	N
0477	3187	730316	70	CHEV	NOVA	250	1	3	3000	10.3	62	74	30.00	6	N	N	Y	Y	048853	18	680	N	32.0	-06.0	N	N
0478	3188	730316	67	MERC	COUG	289	2	1	3500	12.3	59	70	30.05	8	Y	N	N	Y	082275	17	580	D	27.0	+09.0	Y	N

TABLE 12

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0501	1001	730416	71	FORD	GALA	351	2	1	4000	13.2	59	72	29.20	8	Y	Y	Y	Y	036670	23	380	D	32.0	+06.0	Y	N
0502	1002	730416	72	RAMB	HORN	258	1	1	3500	11.2	59	70	29.13	6	Y	Y	Y	Y	039961	16	640	D	28.0	+08.0	N	N
0503	1003	730416	72	BUIC	STAW	455	4	1	5500	15.3	62	70	29.10	8	Y	Y	Y	Y	018200	23	680	D	34.0	+00.0	Y	N
0504	1004	730416	72	FORD	STAW	351	2	1	4500	14.0	61	73	29.13	8	Y	Y	Y	Y	012152	21	675	D	28.0	+06.0	Y	N
0505	1005	730416	71	FORD	MUST	302	2	1	3500	12.3	58	71	29.19	8	N	Y	Y	Y	017614	20	575	D	34.0	+05.0	Y	N
0506	1006	730416	71	DODG	DEMO	225	1	1	3000	10.3	58	71	29.24	6	N	Y	Y	Y	018565	17	530	D	43.0	+00.0	N	N
0507	1007	730416	71	FORD	GALA	351	2	1	4000	12.0	55	70	29.29	8	N	Y	Y	Y	046712	23	500	D	35.0	+07.0	N	N
0508	1008	730416	71	FORD	MAVE	200	1	1	3000	10.3	55	68	29.51	6	N	Y	Y	Y	016581	16	460	N	43.0	-02.0	N	N
0509	1009	730416	71	VOLK	SEDA	097	1	4	2000	8.3	56	70	29.51	4	N	Y	Y	Y	009708	10	920	N	56.0	+00.0	N	N
0510	1010	730416	72	OLDS	98	455	4	1	5000	14.7	55	69	29.51	8	Y	Y	Y	Y	002861	25	610	D	26.0	+08.0	Y	N
0511	1011	730416	72	FORD	GALA	351	2	1	4000	13.2	57	75	29.52	8	N	Y	Y	Y	008155	22	640	D	32.0	+06.0	Y	N
0512	1012	730416	70	OLDS	DELT	350	2	1	4500	14.0	55	70	29.52	8	Y	N	Y	Y	018741	25	650	D	32.0	+04.0	Y	N
0513	1013	730416	71	PONT	GRAN	455	2	1	4500	14.0	56	72	29.52	8	Y	Y	Y	Y	030510	24	710	D	33.0	+04.0	Y	N
0514	1014	730416	70	MERC	MARQ	429	4	1	5000	14.7	55	71	29.52	8	Y	N	Y	Y	046311	24	520	D	32.0	+02.0	Y	N
0515	1015	730417	70	PONT	CATA	400	2	1	4500	14.0	53	70	29.55	8	Y	N	Y	Y	029626	26	630	D	30.0	+08.0	Y	N
0516	1016	730417	70	PLYM	FURY	318	2	1	4000	13.2	53	71	29.57	8	N	N	Y	Y	023030	24	575	D	32.0	+00.0	Y	N
0517	1017	730417	72	CHEV	CAPR	400	2	1	4500	14.0	51	69	29.57	8	Y	Y	Y	Y	016049	24	580	D	27.0	+05.0	Y	N
0518	1018	730417	70	FORD	GALA	351	2	1	4000	12.0	53	71	29.57	8	Y	N	Y	Y	056714	23	500	D	33.0	+08.0	N	N
0519	1019	730417	69	FORD	LTD	302	2	1	4000	12.0	52	72	29.56	8	N	N	Y	Y	063805	24	490	D	32.0	+02.0	N	N
0520	1020	730417	72	BUIC	STAW	455	4	1	5500	15.3	52	73	29.55	8	Y	Y	Y	Y	019069	22	720	D	29.0	+06.0	Y	N
0521	1021	730417	67	VOLK	SEDA	091	1	4	2000	8.3	53	73	29.56	4	N	N	Y	Y	085479	11	640	N	50.0	+02.5	N	N
0522	1022	730417	68	FORD	FALC	200	1	1	3000	10.3	58	71	29.45	6	N	N	Y	Y	046244	16	460	D	41.0	-02.0	N	N
0523	1023	730417	71	LINC	MARK	460	4	1	5500	15.3	59	72	29.44	8	Y	Y	Y	Y	016771	22	500	D	28.0	+06.0	Y	N
0524	1024	730417	71	CHEV	IMPA	350	2	1	4000	12.0	58	70	29.44	8	Y	Y	Y	Y	038416	25	640	D	32.0	+02.0	N	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0525	1025	730417	69	OLDS	CUTL	350	2	1	3500	11.2	60	72	29.44	8	Y	N	Y	Y	020189	25	580	D	34.0	+04.0	N	N
0526	1026	730417	69	FORD	LTD	390	4	1	4000	13.2	59	70	29.44	8	Y	N	Y	Y	066760	24	540	D	30.0	+06.0	Y	N
0527	1027	730417	70	CHEV	IMPA	350	2	1	4000	12.0	59	69	29.44	8	Y	N	Y	Y	030799	25	580	D	32.0	+03.0	N	N
0528	1028	730417	66	FORD	FAIR	200	1	1	3000	10.3	59	70	29.44	6	N	N	N	Y	043365	25	520	D	38.0	-04.0	N	N
0529	1029	730418	67	PONT	VENT	400	2	1	4000	13.2	59	70	29.47	8	Y	N	Y	Y	063044	18	575	D	30.0	-04.0	Y	N
0530	1030	730418	72	VOLK	SQUA	103	0	4	2500	9.4	59	71	29.48	4	N	Y	Y	Y	006574	16	960	N	50.0	+02.0	N	N
0531	1031	730418	70	BUIC	LESA	350	4	1	4500	14.0	59	70	29.48	8	Y	N	Y	Y	044001	20	700	D	32.0	+06.0	Y	N
0532	1032	730418	68	PLYM	SATE	273	2	1	3500	11.2	61	71	29.47	8	N	N	Y	Y	023335	25	640	D	26.0	+05.0	N	N
0533	1033	730418	69	BUIC	SKYL	350	2	1	4000	13.2	60	71	29.47	8	Y	N	Y	Y	028573	13	480	D	30.0	+02.0	Y	N
0534	1034	730418	69	FORD	GALA	302	2	1	4000	12.0	60	73	29.46	8	Y	N	Y	Y	035387	20	580	D	34.0	+07.0	N	N
0535	1035	730418	66	CHEV	CHEL	194	1	1	3000	10.3	60	71	29.45	6	N	N	Y	Y	055111	20	610	D	32.0	+02.0	N	N
0536	1036	730418	72	PLYM	SATE	318	2	1	3500	11.2	62	74	29.44	8	Y	Y	Y	Y	013940	21	650	D	33.0	+00.0	N	N
0537	1037	730418	72	FORD	MAVE	302	2	1	3000	10.3	62	70	29.40	8	Y	Y	Y	Y	001248	15	610	D	30.0	+03.0	N	N
0538	1038	730418	72	BUIC	LESA	350	2	1	4500	14.0	61	70	29.41	8	Y	Y	Y	Y	009132	25	600	D	30.0	+05.0	Y	N
0539	1039	730418	71	DODG	MONA	383	2	1	4500	14.0	62	70	29.42	8	Y	N	Y	Y	017138	23	610	D	35.0	+00.0	Y	N
0540	1040	730418	72	CHEV	MALI	307	2	1	3500	11.2	63	73	29.41	8	Y	Y	Y	Y	006399	19	750	D	31.0	+03.0	N	N
0541	1041	730418	69	BUIC	WILD	430	4	1	4500	14.0	62	72	29.41	8	Y	N	Y	Y	043148	25	560	D	29.0	+01.0	Y	N
0542	1042	730418	72	VOLK	SEDA	097	1	4	2000	8.3	62	72	29.40	4	N	Y	Y	Y	011004	10	910	N	36.0	+10.0	N	N
0543	1043	730418	66	PONT	BONN	389	2	1	4500	14.0	60	70	29.38	8	Y	N	N	Y	077429	20	540	D	30.0	+02.0	Y	N
0544	1044	730419	68	MERC	MONT	302	2	1	3500	11.2	60	70	29.39	8	N	N	Y	Y	028751	17	560	D	31.0	+06.0	N	N
0545	1045	730419	67	CHEV	BELA	283	2	1	4500	12.7	60	70	29.39	8	Y	N	Y	Y	077090	22	520	D	33.0	+07.0	N	N
0546	1046	730419	67	PLYM	FURY	318	2	1	4000	12.0	61	72	29.40	8	N	N	Y	Y	073054	25	580	D	32.0	+10.0	N	N
0547	1047	730419	71	OLDS	CUTL	350	2	1	4000	13.2	60	70	29.40	8	Y	Y	Y	Y	025290	20	700	D	32.0	+05.0	Y	N
0548	1048	730419	72	OLDS	CUTL	350	2	1	4000	13.2	60	70	29.40	8	Y	Y	Y	Y	002907	20	690	D	30.0	+01.0	Y	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY.

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CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0549	1049	730419	69	CHEV	IMPA	327	2	1	4000	13.2	60	70	29.40	8	N	N	Y	Y	036412	16	660	D	30.0	-03.0	Y	N
0550	1050	730419	72	CHRY	NEWP	400	2	1	4500	14.0	60	70	29.40	8	Y	Y	Y	Y	012502	23	610	D	30.0	+04.0	Y	N
0551	1051	730419	71	BUIC	SKYL	350	2	1	4000	13.2	63	72	29.25	8	Y	Y	Y	Y	028406	23	650	D	30.0	+04.0	Y	N
0552	1052	730419	72	TOYO	CORN	120	2	4	2500	9.4	65	74	29.25	4	N	Y	Y	Y	004758	13	800	N	54.0	+00.0	N	N
0553	1053	730419	71	PLYM	DUST	198	1	1	3000	10.3	64	74	29.32	6	Y	Y	Y	Y	043444	13	540	D	38.0	+05.0	N	N
0554	1054	730419	71	OPEL	1900	116	2	1	2500	9.4	62	72	29.32	4	N	Y	Y	Y	031480	10	830	D	54.0	+00.0	N	N
0555	1055	730419	68	OLDS	CUTL	350	2	1	3500	12.3	65	74	29.32	8	N	N	Y	Y	058601	20	600	D	32.0	-01.0	Y	N
0556	1056	730419	70	BUIC	ELEC	455	4	1	4500	14.0	65	75	29.32	8	Y	N	Y	Y	032082	25	540	D	23.0	+00.0	Y	N
0557	1057	730419	71	VOLK	SEDA	097	1	4	2000	8.3	64	74	29.32	4	N	Y	Y	Y	026768	10	800	N	48.0	+00.0	N	N
0558	1058	730420	70	CHEV	CAMR	350	2	1	3500	11.2	51	69	29.38	8	N	N	Y	Y	023761	19	610	D	28.0	+04.0	N	N
0559	1059	730420	70	CHRY	STAW	440	4	1	5000	14.7	61	71	29.41	8	Y	N	Y	Y	014476	23	550	D	34.0	+02.0	Y	N
0560	1060	730420	72	PLYM	FURY	360	2	1	4000	13.2	61	71	29.41	8	Y	Y	Y	Y	015326	23	580	D	28.0	+03.0	Y	N
0561	1061	730420	70	CHEV	IMPL	400	2	1	4000	13.2	53	73	29.45	8	Y	N	Y	Y	033131	20	470	D	30.0	+09.0	Y	N
0562	1062	730420	72	CADI	COUP	472	4	1	5000	14.7	64	74	29.44	8	Y	Y	Y	Y	007453	27	670	D	31.0	+06.0	Y	N
0563	1063	730420	70	FORD	FAIR	302	2	1	3500	12.3	65	79	29.40	8	N	N	Y	Y	023963	20	500	D	34.0	+08.0	Y	N
0564	1064	730420	69	DODG	MONA	383	2	1	4000	12.0	65	75	29.52	8	Y	N	Y	Y	043095	24	520	D	28.0	-02.0	N	N
0565	1065	730420	70	FORD	FAIR	250	1	1	3500	11.2	67	76	29.51	6	N	N	Y	Y	026482	20	650	D	35.0	-02.0	N	N
0567	1067	730420	68	CHEV	CORV	164	2	1	2500	9.4	65	74	29.49	6	N	N	Y	Y	042288	11	480	D	32.0	-04.0	N	N
0568	1068	730420	68	BUIC	WILD	430	4	1	4500	14.0	66	74	29.46	8	Y	N	Y	Y	044609	17	590	D	34.0	+06.0	Y	N
0569	1069	730420	72	DODG	DEMO	225	1	1	3000	10.3	66	75	29.44	6	N	Y	Y	Y	003257	13	600	D	46.0	+00.0	N	N
0570	1070	730420	66	CADI	DEVI	429	4	1	4500	14.0	66	74	29.43	8	Y	N	N	Y	100048	24	580	D	31.0	+04.0	Y	N
0571	1071	730423	70	VOLK	SEDA	097	1	4	2000	8.3	55	59	29.29	4	N	N	Y	Y	027284	10	520	N	52.0	+07.5	N	N
0572	1072	730423	70	PONT	LEMA	350	2	1	4000	13.2	54	68	29.29	8	N	N	Y	Y	013677	22	590	D	31.0	+05.0	Y	N
0573	1073	730423	66	CHEV	IMPA	283	2	1	4000	12.0	53	69	29.29	8	N	N	N	Y	052001	20	520	D	31.0	+08.0	N	N

TABLE 12, CONT'D

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CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0574	1074	730423	68	CHEV	CAMA	327	4	1	3500	12.3	56	73	29.29	8	N	N	Y	Y	057276	18	570	D	29.0	+09.0	Y	N
0575	1075	730423	70	FORD	MAVF	200	1	1	2500	9.4	57	73	29.29	6	Y	N	Y	Y	030064	16	540	D	41.0	-02.0	N	N
0576	1076	730423	68	CHRY	NEWP	383	2	1	4000	13.2	56	70	29.26	8	Y	N	Y	Y	052368	25	710	D	23.0	+04.0	Y	N
0577	1077	730424	72	FORD	CAPR	122	2	4	2000	8.3	56	69	29.26	4	N	Y	Y	Y	011115	12	1000	N	42.0	-08.0	N	N
0578	1078	730423	68	CHEV	CHEV	396	4	1	3500	12.3	55	68	29.28	8	Y	N	Y	Y	072217	20	560	D	29.0	-06.0	Y	N
0579	1079	730423	69	VOLK	BUG	091	1	4	2000	8.3	54	68	29.28	4	N	N	Y	Y	038024	10	860	N	50.0	+12.0	N	N
0580	1080	730423	72	FORD	LTD	400	2	1	4000	13.2	56	68	29.28	8	Y	Y	Y	Y	002313	17	560	D	31.0	+00.0	Y	N
0581	1081	730423	69	CHEV	IMPA	350	4	1	4000	13.2	55	70	29.33	8	Y	N	Y	Y	050274	25	580	D	30.0	+04.0	Y	N
0583	1083	730424	69	FORD	RANC	351	2	1	4500	14.0	51	68	29.38	8	N	N	Y	Y	041502	23	520	D	23.0	+07.0	Y	N
0584	1084	730424	71	CHEV	VEGA	140	1	4	2500	9.4	53	68	29.38	4	N	Y	Y	Y	020875	11	800	N	38.0	+05.0	N	N
0585	1085	730424	68	CHEV	BELA	307	2	1	4500	12.7	53	69	29.39	8	N	N	Y	Y	045841	22	590	D	32.0	+09.0	N	N
0586	1086	730424	70	FORD	COUN	351	2	1	4500	14.0	52	68	29.38	8	Y	N	Y	Y	039931	23	520	D	32.0	+10.0	Y	N
0587	1087	730424	71	FORD	CAPR	098	1	3	2500	9.4	53	69	29.41	4	N	Y	Y	Y	017390	12	800	N	52.0	+02.0	N	N
0588	1088	730424	72	DODG	MONA	360	2	1	4500	14.0	50	68	29.42	8	Y	Y	Y	Y	000962	23	650	D	37.0	+02.0	Y	N
0589	1089	730424	68	DODG	CORN	318	2	1	3500	11.2	50	70	29.42	8	N	N	Y	Y	047137	21	550	D	24.0	+10.0	N	N
0590	1090	730424	71	BUIC	LIMI	455	4	1	5000	14.7	55	66	29.41	8	Y	Y	Y	Y	024649	25	740	D	30.0	+02.0	Y	N
0591	1091	730424	67	FORD	CUST	289	2	1	4000	12.0	54	68	29.40	8	N	N	N	Y	069868	25	500	D	25.0	-03.0	N	N
0592	1092	730424	71	CHEV	IMPA	350	2	1	4000	13.2	54	68	29.40	8	Y	Y	Y	Y	010887	24	600	D	27.0	+02.0	Y	N
0592R	1106	730424	71	CHEV	IMPA	350	2	1	4000	13.2	53	68	29.36	8	Y	Y	Y	Y	010887	24	600	D	27.0	+02.0	Y	N
0593	1093	730424	68	FORD	MUST	289	2	1	3000	10.3	55	70	29.40	8	N	N	Y	Y	041963	16	590	D	30.0	-03.0	N	N
0594	1094	730424	70	VOLK	SEDA	097	1	4	2000	8.3	54	70	29.39	4	N	N	Y	Y	039690	10	1040	N	52.0	+07.5	N	N
0594R	1105	730424	70	VOLK	SEDA	097	1	4	2000	8.3	53	68	29.36	4	N	N	Y	Y	039690	10	1040	N	52.0	+07.5	N	N
0595	1095	730424	69	CADI	DEVI	472	4	1	5000	14.7	54	68	29.37	8	Y	N	Y	Y	042617	26	680	D	29.0	+10.0	Y	N
0596	1096	730424	68	CHEV	BELA	307	2	1	4000	12.0	52	69	29.36	8	N	N	Y	Y	030144	25	610	D	34.0	+10.0	N	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0597	1097	730425	72	MERC	MONT	400	2	1	4500	14.0	53	69	29.38	8	Y	Y	Y	Y	008761	22	560	D	33.0	+09.0	Y	N
0598	1098	730425	71	OLDS	DELT	455	4	1	4500	14.0	52	69	29.39	8	Y	Y	Y	Y	024160	25	590	D	32.0	+07.0	Y	N
0598R	1115	730425	71	OLDS	DELT	455	4	1	4500	14.0	52	68	29.42	8	Y	Y	Y	Y	024160	25	600	D	32.0	+07.0	Y	N
0599	1099	730425	72	CHEV	MONT	350	2	1	4000	13.2	51	68	29.38	8	Y	Y	Y	Y	007805	19	670	D	32.0	+05.0	Y	N
0599R	1118	730425	72	CHEV	MONT	350	2	1	4000	13.2	49	69	29.46	8	Y	Y	Y	Y	007805	19	640	D	32.0	+05.0	Y	N
0600	1100	730425	71	PONT	FIRE	350	2	1	3500	12.3	51	68	29.38	8	N	Y	Y	Y	025161	17	490	D	32.0	+10.0	Y	N
0601	1101	730425	69	MERC	MONT	390	2	1	4500	14.0	52	69	29.38	8	Y	N	Y	Y	043951	24	600	D	28.0	+10.0	Y	N
0602	1102	730425	66	PONT	GTO	326	4	1	4000	12.0	50	68	29.38	8	N	N	N	Y	072618	12	690	D	31.0	+12.0	N	N
0603	1103	730425	71	CHEV	MALI	307	2	1	3500	11.2	51	69	29.38	8	Y	Y	Y	Y	008088	20	510	D	31.0	+13.0	N	N
0604	1106	730425	71	TOYO	CORO	096	1	4	2000	8.3	52	70	29.38	4	N	Y	Y	Y	013732	12	950	D	56.0	+16.0	N	N
0605	1107	730425	67	OLDS	CUTL	330	2	1	3500	12.3	52	66	29.37	8	Y	N	N	Y	029979	25	540	D	30.0	+04.0	Y	N
0606	1108	730425	69	CHEV	CAMA	307	2	1	3500	11.2	55	69	29.37	8	N	N	Y	Y	026475	18	550	D	29.0	+00.0	N	N
0607	1109	730425	66	CHEV	BISC	283	2	3	4000	12.0	55	72	29.40	8	N	N	N	Y	051068	20	580	N	27.0	+05.0	N	N
0608	1110	730425	71	CHEV	CAPR	400	2	1	4500	14.0	56	71	29.40	8	Y	Y	Y	Y	026187	23	640	D	30.0	+05.0	Y	N
0609	1111	730425	70	PLYM	VALI	225	1	1	3000	10.3	53	68	29.40	6	N	N	Y	Y	028064	18	410	D	35.0	+05.0	N	N
0610	1112	730425	68	CADI	FLEE	472	4	1	5000	14.7	55	70	29.38	8	Y	N	Y	Y	030893	26	780	D	33.0	+10.0	Y	N
0611	1113	730426	68	VOLK	SEDA	091	1	4	2000	8.3	52	68	29.42	4	N	N	Y	Y	045516	10	1300	N	57.0	+03.0	N	N
0612	1114	730426	65	PLYM	VALI	225	1	1	3000	10.3	52	68	29.42	6	N	N	N	Y	039711	18	710	D	46.0	+10.0	N	N
0613	1116	730426	69	PLYM	FURY	225	1	1	4000	12.0	43	68	29.45	6	N	N	Y	Y	062215	24	530	D	47.0	+00.0	N	N
0613R	1133	730426	69	PLYM	FURY	225	1	1	4000	12.0	52	69	29.34	6	N	N	Y	Y	062215	24	550	D	47.0	+00.0	N	N
0614	1117	730426	67	PONT	FIRE	326	2	1	3500	11.2	52	69	29.46	8	Y	N	N	Y	055683	18	640	D	32.0	+06.0	N	N
0615	1119	730426	69	OLDS	98	455	4	1	4500	14.0	52	68	29.47	8	Y	N	Y	Y	057035	25	550	D	28.0	+10.0	Y	N
0616	1120	730426	67	BUIC	LESA	340	2	1	4000	13.2	49	69	29.42	8	N	N	N	Y	043038	25	560	D	32.0	+10.0	Y	N
0617	1121	730426	69	PONT	LEMA	350	2	1	3500	12.3	56	68	29.40	8	Y	N	Y	Y	026308	21	610	D	32.0	+06.0	Y	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0619	1123	730426	68	FORD	LTD	390	2	1	4000	13.2	54	68	29.38	8	Y	N	Y	Y	054998	20	510	D	30.0	+12.0	Y	N
0620	1124	730426	72	CHEV	CAMA	350	2	1	3500	12.3	50	68	29.37	8	Y	Y	Y	Y	011602	18	500	D	29.0	+08.0	Y	N
0621	1125	730426	68	PONT	CATA	400	2	1	4000	13.2	52	68	29.32	8	Y	N	Y	Y	063705	26	500	D	31.0	+09.0	Y	N
0622	1126	730426	71	CHEV	IMPA	350	2	1	4000	13.2	50	68	29.32	8	Y	N	Y	Y	025965	25	630	D	31.0	+07.0	Y	N
0623	1127	730426	67	FORD	RANC	390	2	1	4000	13.2	53	68	29.32	8	Y	N	N	Y	053799	23	520	D	28.0	+04.0	Y	N
0623R	1136	730426	67	FORD	RANC	390	2	1	4000	13.2	55	72	29.31	8	Y	N	N	Y	053799	23	520	D	28.0	+04.0	Y	N
0624	1128	730427	72	FORD	RANC	351	2	1	4500	12.7	50	69	29.32	8	Y	Y	Y	Y	012928	21	440	D	38.0	+08.0	N	N
0624R	1145	730427	72	FORD	RANC	351	2	1	4500	12.7	48	68	29.32	8	Y	Y	Y	Y	012928	21	500	D	38.0	+08.0	N	N
0625	1129	730427	72	CHEV	CONC	402	4	1	4000	13.2	52	69	29.33	8	Y	Y	Y	Y	011287	18	590	D	32.0	+07.0	Y	N
0626	1130	730427	70	FORD	CUST	302	2	1	4000	12.0	52	70	29.33	8	N	N	Y	Y	029889	24	440	D	32.0	+03.0	N	N
0627	1131	730427	68	PONT	TEMP	350	2	1	4000	12.0	51	70	29.32	8	Y	N	Y	Y	081791	20	620	D	32.0	+10.0	N	N
0627R	1146	730427	68	PONT	TEMP	350	2	1	4000	12.0	49	68	29.34	8	Y	N	Y	Y	081791	20	620	D	32.0	+10.0	N	N
0628	1132	730427	70	CHEV	MALI	307	2	1	3500	12.3	50	70	29.32	8	N	N	Y	Y	027343	20	630	D	31.0	+03.0	Y	N
0628R	1144	730427	70	CHEV	MALI	307	2	1	3500	12.3	49	68	29.32	8	N	N	Y	Y	027343	20	650	D	32.0	+03.0	Y	N
0629	1134	730427	70	OLDS	TORO	455	4	1	4500	14.0	49	72	29.33	8	Y	N	Y	Y	017495	25	610	D	27.0	+08.0	Y	N
0630	1135	730427	67	CHRY	NEWP	383	2	1	4000	13.2	49	72	29.32	8	Y	N	N	Y	021977	25	560	D	37.0	+12.0	Y	N
0631	1137	730427	69	CHEV	NOVA	230	1	1	3000	10.3	54	68	29.30	6	N	N	Y	Y	057983	18	610	D	33.0	+06.0	N	N
0632	1138	730427	68	RAMB	JAVE	343	4	1	3500	11.2	72	69	29.30	8	Y	N	Y	Y	038152	19	590	D	31.0	+10.0	N	N
0633	1139	730427	67	CHEV	IMPA	327	4	1	4000	12.0	52	68	29.30	8	N	N	N	Y	080596	22	410	D	31.0	+05.0	N	N
0634	1140	730427	70	DODG	CORO	318	2	3	4000	12.0	52	68	29.29	8	N	N	Y	Y	050346	24	740	N	36.0	+12.0	N	N
0635	1141	730427	66	FORD	COUN	390	2	1	4500	12.7	58	68	29.29	8	N	N	N	Y	095050	20	610	D	32.0	+03.0	N	N
0636	1142	730427	66	FORD	GALA	289	2	1	4000	12.0	52	66	29.29	8	Y	N	N	Y	074185	25	500	D	29.0	-04.0	N	N
0636R	1150	730427	66	FORD	GALA	289	2	1	4000	12.0	50	68	29.33	8	Y	N	N	Y	074185	25	500	D	29.0	-04.0	N	N
0637	1143	730427	67	MERC	COLO	390	2	1	4500	14.0	52	68	29.28	8	N	N	N	Y	108899	20	590	D	32.0	+06.0	Y	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	N	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0638	1147	730428	66	MERC	COLO	390	2	1	4500	12.7	49	69	29.34	8	Y	N	N	Y	054443	20	440	D	37.0	+17.0	Y	N
0639	1148	730428	71	PLYM	SATE	318	2	1	3500	12.3	49	68	29.33	8	Y	Y	Y	Y	020944	19	600	D	29.0	+04.0	Y	N
0640	1149	730428	66	VOLK	SEDA	078	1	4	2000	8.3	49	68	29.32	4	N	N	N	Y	063624	10	1400	N	59.0	+02.0	N	N
0641	1151	730428	72	PONT	LEMA	350	2	1	3500	12.5	52	70	29.33	8	Y	Y	Y	Y	011904	20	600	D	30.0	+06.0	Y	N
0642	1152	730428	67	CHEV	BELA	283	2	1	4000	12.0	51	70	29.33	8	N	N	N	Y	050885	24	540	D	32.0	-02.0	N	N
0643	1153	730428	69	PONT	CATA	400	2	1	4000	13.2	52	70	29.37	8	Y	N	Y	Y	042621	26	560	D	31.0	+12.0	Y	N
0644	1155	730428	71	MERC	MONT	400	2	1	4000	13.2	50	68	29.37	8	Y	Y	Y	Y	028391	22	450	D	27.0	-03.0	Y	N
0645	1157	730428	66	OLDS	DELT	330	2	1	4000	12.0	54	70	29.37	8	Y	N	N	Y	093748	25	510	D	31.0	+06.0	N	N
0646	1156	730428	68	FORD	MUST	289	2	1	3000	10.3	55	70	29.37	8	N	N	Y	Y	039323	16	540	D	29.0	+09.0	N	N
0648	1158	730430	66	BUIC	LESA	340	2	1	4000	13.2	60	70	29.32	8	N	N	N	Y	096040	25	540	D	29.0	-07.5	Y	N
0649	1159	730430	72	CHEV	VEGA	140	2	1	2500	9.4	58	68	29.34	4	N	Y	Y	Y	012571	11	600	D	40.0	+09.0	N	N
0650	1160	730430	72	DATS	510	097	2	4	2500	9.4	58	68	29.32	4	N	Y	Y	Y	030030	12	1040	D	52.0	+10.0	N	N
0651	1161	730430	70	TOYO	CORO	116	1	4	2500	9.4	59	70	29.30	4	N	N	Y	Y	032881	12	810	N	52.0	+00.0	N	N
0652	1162	730430	71	CHEV	CAPR	400	2	1	4500	14.0	59	69	29.30	8	Y	Y	Y	Y	040366	24	570	D	29.0	+09.0	Y	N
0653	1163	730430	72	CHEV	IMPA	350	2	1	4500	14.0	60	69	29.30	8	Y	Y	Y	Y	019476	24	590	D	32.0	+09.0	Y	N
0654	1164	730430	68	FORD	THUN	429	4	1	4500	14.0	60	69	29.30	8	Y	N	Y	Y	038874	24	750	D	34.0	+10.0	Y	N
0655	1165	730430	66	CHEV	IMPA	283	2	1	4000	12.0	51	69	29.29	8	N	N	N	Y	082160	20	500	D	34.0	+05.0	N	N
0656	1166	730430	67	CHEV	NOVA	194	1	1	3000	10.3	61	69	29.28	6	N	N	N	Y	096775	18	480	D	28.0	+10.0	N	N
0657	1167	730501	72	FORD	THUN	429	4	1	4500	14.0	56	72	29.18	8	Y	Y	Y	Y	016784	22	400	D	25.0	+10.0	Y	N
0658	1168	730501	69	CHEV	NOVA	350	4	1	3000	11.3	64	73	29.17	8	Y	N	Y	Y	101630	18	510	D	31.0	+02.0	Y	N
0659	1169	730501	69	PLYM	FURY	318	2	1	4000	13.2	63	70	29.17	8	N	N	Y	Y	058945	21	660	D	31.0	+03.0	Y	N
0660	1170	730501	67	CHEV	CAPR	283	2	1	4000	13.2	62	70	29.16	8	N	N	N	Y	064776	24	460	D	29.0	+09.0	Y	N
0661	1171	730501	72	CHEV	IMPA	350	2	1	4500	12.7	64	71	29.17	8	Y	Y	Y	Y	012889	25	590	D	36.0	+10.0	N	N
0662	1172	730501	67	FORD	COUN	289	4	3	4000	12.0	65	74	29.19	8	N	N	N	Y	064936	20	740	D	37.0	+12.0	N	N

TABLE 12, CONT'D

VEHICLE INFORMATION SUMMARY

PROJECT CODE '31'

CHICAGO

VEH#	TST#	DATE	YR	MAKE	MODL	CID	N	T	IWT	HP	WB	DB	BAROM	C	A	V	X	P	ODOM.	TC	IRPM	S	DWEL	TIME	L	E
0664	1174	730502	72	PONT	GRAN	455	2	1	4500	14.0	64	70	29.12	8	Y	Y	Y	Y	022064	25	690	D	30.0	+09.0	Y	N
0665	1175	730502	66	RAMB	CLAS	232	1	1	3000	10.3	60	70	29.12	6	N	N	N	Y	066725	20	600	D	30.0	+11.0	N	N
0666	1176	730502	66	DODG	CHAR	361	2	1	4000	13.2	60	69	29.15	8	N	N	N	Y	039063	19	710	D	26.0	+09.0	Y	N
0667	1177	730502	71	FORD	LTD	429	2	1	4500	14.0	58	72	29.18	8	Y	Y	Y	Y	036522	22	610	D	27.0	+08.0	Y	N
0668	1178	730502	69	FORD	FALC	200	1	1	3000	10.3	58	70	29.19	6	Y	N	Y	Y	101973	16	520	D	41.0	-07.0	N	N
0669	1179	730503	70	DODG	POLA	318	2	1	4000	13.2	55	69	29.36	8	Y	N	Y	Y	021957	23	550	D	32.0	-01.0	Y	N
0670	1180	730503	70	CHEV	NOVA	230	1	4	3000	10.3	56	68	29.34	6	N	N	Y	Y	043198	20	460	D	28.0	+00.0	N	N
0671	1181	730503	72	PLYM	SATE	318	2	1	3500	11.2	51	68	29.39	8	Y	Y	Y	Y	025999	25	670	D	24.0	+10.0	N	N
0672	1182	730504	70	RAMB	REBE	304	2	1	3500	11.2	52	68	29.49	8	N	N	Y	Y	034152	21	520	D	27.0	+05.0	N	N
0673	1183	730504	67	DODG	POLA	318	2	1	4000	12.0	51	69	29.44	8	Y	N	N	Y	036116	25	580	D	25.0	+07.0	N	N
0674	1184	730504	67	RAMB	REBE	290	2	1	3500	11.2	50	69	29.56	8	Y	N	Y	Y	032307	17	700	D	26.0	-02.0	N	N
0675	1185	730504	71	DATS	STAW	097	1	4	2500	9.4	58	74	29.21	4	N	N	Y	Y	021689	12	840	N	48.0	+10.0	N	N

TABLE 13A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0001	1969	CADI	472	6.31	143.8	685.3	3.34	0.87	4.21	3.39	3.57	9.5
0002	1970	CHEV	307	6.16	61.2	471.3	3.97	0.83	4.80	4.30	3.10	15.1
0003	1970	CHEV	350	6.04	109.2	506.9	3.41	0.68	4.09	3.66	6.10	12.7
0004	1969	FORD	390	7.20	134.7	521.2	2.26	0.30	2.55	2.12	3.57	11.7
0005	1972	OLDS	350	5.25	91.2	671.0	3.55	0.68	4.23	3.77	1.27	10.7
0006	1969	OLDS	350	6.80	105.5	527.8	2.42	0.76	3.19	2.93	7.08	12.4
0007	1970	FORD	351	4.57	86.8	561.4	2.56	0.34	2.90	2.67	3.82	12.5
0010	1968	CHEV	230	12.12	89.0	427.9	2.91	0.56	3.47	3.11	7.04	14.6
0012	1970	FORD	200	4.14	54.6	406.7	2.26	0.30	2.57	2.19	3.40	17.6
0013	1970	VOLK	97	4.90	90.6	333.7	2.58	0.38	2.96	2.50	4.30	18.1
0014	1966	FORD	352	9.09	116.7	530.5	4.15	0.98	5.13	4.38	5.30	11.9
0015	1969	PLYM	318	7.76	176.7	422.4	0.98	0.08	1.05	0.91	3.30	12.2
0016	1970	PONT	350	8.11	152.3	561.1	2.67	0.96	3.63	3.38	7.23	10.7
0017	1969	FORD	302	7.06	93.0	432.5	2.31	0.37	2.68	2.48	6.67	14.8
0018	1968	BUIC	430	11.24	152.7	547.3	4.30	1.36	5.66	5.11	7.23	10.8
0020	1972	FORD	200	3.67	45.6	393.1	3.52	0.95	4.47	4.14	2.88	18.6
0021	1970	FORD	351	11.01	178.1	528.4	2.73	0.38	3.11	2.78	5.20	10.5
0022	1969	CHEV	350	6.60	128.8	499.2	2.38	0.32	2.70	2.43	6.70	12.3
0024	1971	CHEV	400	8.56	199.6	742.0	1.77	0.12	1.89	1.69	1.86	8.2
0026	1968	PONT	350	4.62	50.8	585.2	2.87	0.67	3.54	3.53	1.95	13.1
0027	1971	VOLK	97	4.14	64.8	293.9	1.50	0.15	1.65	1.50	2.56	21.7
0028	1970	BUIC	455	7.08	156.2	598.5	1.91	0.19	2.10	1.89	4.87	10.2
0029	1971	CHEV	307	6.94	70.2	479.0	1.92	0.28	2.20	2.13	8.92	14.5
0030	1972	FORD	429	5.84	114.9	665.7	3.17	0.59	3.76	3.51	5.91	10.3
0031	1966	BUIC	425	13.93	249.4	468.5	1.28	0.11	1.39	1.16	5.20	9.8
0033	1966	CHEV	283	9.64	136.0	511.3	2.21	0.32	2.53	2.11	2.46	11.7
0034	1970	TOYO	71	5.85	80.9	487.6	3.91	0.95	4.86	4.22	1.80	14.0
0035	1967	FORD	289	8.59	114.3	459.9	3.38	0.61	3.99	3.48	5.10	13.3
0038	1970	CHEV	350	6.69	103.6	522.4	2.91	0.52	3.44	2.99	7.42	12.6
0039	1971	CHEV	350	6.77	150.5	582.2	1.48	0.13	1.61	1.32	6.48	10.6

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0041	1970	PLYM	318	5.76	97.5	586.0	3.66	1.16	4.82	4.12	2.60	11.7
0042	1971	VOLK	97	4.10	27.9	391.2	3.51	0.65	4.16	3.63	0.20	19.8
0043	1971	FORD	351	5.42	57.2	560.4	4.17	1.02	5.19	4.43	3.50	13.3
0044	1966	FORD	289	15.01	97.8	515.4	2.40	0.47	2.87	2.45	0.25	12.4
0045	1966	CHEV	283	7.88	77.4	563.5	5.06	1.67	6.73	5.98	1.86	12.5
0046	1970	VOLK	97	6.03	98.8	330.5	1.91	0.26	2.17	1.74	3.34	17.6
0048	1967	FORD	390	12.53	168.0	603.8	2.99	0.73	3.72	3.19	0.50	9.8
0049	1971	CHEV	400	5.95	91.7	634.9	5.99	1.63	7.62	6.42	2.00	11.1
0051	1971	DATS	97	3.45	68.3	303.5	1.99	0.23	2.22	1.88	2.30	21.0
0052	1970	OLDS	350	7.81	168.0	586.3	2.18	0.39	2.57	2.27	4.40	10.1
0052R	1970	OLDS	350	7.47	145.1	571.6	2.30	0.31	2.61	2.24	3.80	10.7
0054	1968	PLYM	318	7.16	150.9	510.8	2.20	0.29	2.50	2.12	3.70	11.5
0056	1971	TOYO	71	4.20	66.6	302.0	1.95	0.23	2.18	1.85	2.40	21.1
0057	1968	FORD	390	7.99	122.0	617.0	2.67	0.31	2.98	2.53	2.90	10.6
0062	1969	BUIC	350	7.54	187.6	535.3	2.22	0.49	2.71	2.35	2.00	10.4
0063	1971	DODG	225	5.64	97.0	414.1	2.74	0.41	3.16	2.69	1.20	15.2
0065	1969	PONT	350	5.13	56.6	564.0	4.79	1.20	5.99	5.09	1.70	13.3
0066	1969	FORD	351	7.96	85.1	476.4	3.99	0.90	4.89	4.04	7.60	14.0
0068	1969	PONT	400	6.80	120.5	554.6	3.49	0.54	4.02	3.42	2.60	11.6
0069	1971	PLYM	318	5.06	76.5	459.2	2.72	0.34	3.06	2.58	5.10	14.9
0070	1966	VOLK	78	6.41	100.3	205.9	0.84	0.05	0.89	0.76	2.35	23.1
0071	1972	CADI	472	3.46	171.6	905.6	1.44	0.08	1.52	1.28	1.60	7.5
0072	1966	CADI	429	6.15	114.3	655.1	4.60	1.07	5.68	4.82	0.50	10.4
0073	1969	VOLK	91	5.67	84.9	244.3	1.57	0.16	1.72	1.51	7.40	22.4
0075	1968	FORD	289	5.15	46.3	491.4	3.19	0.56	3.74	3.14	1.99	15.3
0076	1968	CADI	472	4.36	94.5	754.0	4.29	1.01	5.30	4.48	1.60	9.7
0077	1968	CHEV	327	5.65	101.6	749.8	2.25	0.45	2.69	2.29	5.00	9.6
0077R	1968	CHEV	327	6.20	105.5	675.4	2.19	0.25	2.44	2.02	5.70	10.3
0078	1967	PLYM	318	20.56	254.3	382.4	0.82	0.10	0.92	0.78	5.50	10.5
0078R	1967	PLYM	318	22.36	269.8	382.4	0.64	0.06	0.70	0.58	5.10	10.1

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0079	1966	PONT	326	7.96	85.0	525.1	3.61	0.91	4.52	3.84	5.40	13.0
0080	1967	VOLK	91	20.49	160.2	214.1	1.15	0.12	1.28	1.08	10.40	16.7
0081	1972	CHRY	400	6.29	131.6	603.3	1.96	0.30	2.25	1.88	1.20	10.7
0082	1966	PONT	389	7.36	123.4	537.4	2.07	0.21	2.28	1.92	2.20	11.8
0083	1968	PONT	400	4.87	45.7	647.8	3.65	0.75	4.40	3.71	0.09	12.1
0084	1972	VOLK	97	6.73	82.0	307.3	1.66	0.17	1.83	1.56	4.70	19.4
0086	1970	BUIC	350	6.44	182.0	471.9	1.15	0.06	1.20	1.01	7.42	11.4
0087	1971	MERC	351	5.26	94.0	621.5	3.17	0.60	3.77	3.11	1.75	11.3
0089	1969	FORD	302	9.48	144.5	490.9	2.30	0.39	2.69	2.20	5.30	11.9
0091	1970	FORD	302	7.70	99.2	537.6	4.36	0.49	4.85	4.07	5.50	12.4
0092	1971	CHEV	350	4.34	108.6	613.6	2.10	0.19	2.29	1.97	4.50	11.1
0094	1972	CHEV	400	29.35	132.7	659.8	1.77	0.48	2.25	1.88	4.50	9.2
0095	1969	CHEV	350	10.25	184.7	492.6	1.95	0.19	2.14	1.80	8.90	10.9
0096	1971	OLDS	350	6.07	96.3	597.8	2.84	0.48	3.31	2.80	2.70	11.5
0098	1972	MERC	351	4.43	105.7	570.0	2.72	0.56	3.28	3.12	2.77	11.8
0100	1972	BUIC	455	3.81	83.8	822.2	3.10	1.15	4.25	3.48	4.48	9.2
0102	1972	FORD	351	4.57	69.9	588.1	3.22	0.88	4.11	3.88	3.57	12.5
0103	1970	FORD	250	3.52	44.3	413.5	2.86	0.42	3.27	2.77	4.40	18.0
0105	1970	DODG	318	5.51	85.7	509.8	3.42	0.65	4.07	3.42	5.90	13.4
0107	1971	BUIC	350	4.50	102.3	516.4	1.60	0.14	1.74	1.46	5.40	12.8
0108	1970	DODG	383	6.30	110.4	568.9	4.24	1.14	5.39	4.47	5.50	11.6
0109	1971	OPEL	116	3.17	58.5	333.2	2.47	0.29	2.76	2.32	5.90	20.4
0110	1972	OLDS	455	4.57	36.4	648.8	3.00	0.80	3.80	3.73	0.94	12.3
0111	1969	BUIC	430	7.86	141.0	431.2	1.76	0.22	1.98	1.69	2.10	13.1
0112	1972	AMC	258	2.89	67.0	430.7	1.92	0.19	2.11	2.00	1.70	16.3
0113	1970	PLYM	225	5.87	103.6	340.3	2.45	0.36	2.81	2.39	0.94	17.0
0114	1972	PLYM	318	7.67	133.2	523.1	2.61	0.52	3.13	2.90	8.10	11.7
0116	1971	FORD	429	5.29	72.9	698.9	5.03	1.39	6.43	5.49	5.20	10.7
0117	1967	CHRY	383	10.87	284.8	542.0	0.82	0.06	0.88	0.75	1.20	8.7
0118	1971	FORD	302	5.36	66.5	554.3	2.81	0.50	3.31	3.20	1.77	13.1

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0119	1967	FORD	289	15.57	193.7	371.7	1.20	0.11	1.31	1.20	8.92	12.2
0120	1972	FORD	122	6.70	90.1	307.2	1.58	0.11	1.69	1.58	1.40	18.9
0121	1971	CHEV	350	4.61	38.8	674.1	3.60	0.65	4.25	3.51	0.60	11.8
0123	1972	FORD	400	4.34	87.6	719.8	5.75	1.89	7.64	6.37	7.40	10.2
0124	1966	AMC	232	7.99	166.0	376.0	1.31	0.24	1.55	1.31	7.23	13.4
0125	1968	CHRY	440	16.75	203.4	587.0	2.06	0.20	2.26	1.90	3.80	9.2
0126	1968	VOLK	91	6.43	76.9	252.6	1.96	0.17	2.13	1.76	1.30	22.5
0127	1971	CHEV	140	4.64	85.8	338.4	2.18	0.30	2.48	2.28	6.86	18.2
0128	1972	CHEV	307	5.09	51.3	650.8	3.14	0.73	3.87	3.64	0.29	11.9
0129	1967	CHEV	283	10.38	145.5	416.4	1.58	0.25	1.83	1.48	6.10	13.1
0130	1970	MERC	429	10.38	81.8	681.4	3.46	0.60	4.06	3.33	3.20	10.5
0131	1967	PONT	400	11.99	155.7	482.3	3.28	0.68	3.96	3.07	7.40	11.6
0132	1972	CHEV	350	3.07	47.2	542.2	1.72	0.19	1.91	1.77	1.52	14.2
0133	1968	FORD	428	10.52	193.4	621.9	4.42	0.43	4.85	3.88	9.47	9.3
0134	1969	CHEV	230	8.99	104.6	318.4	1.38	0.19	1.57	1.25	6.40	17.4
0135	1971	BUIC	455	5.28	98.9	690.7	3.51	0.66	4.17	3.34	5.20	10.3
0136	1972	FORD	302	4.83	91.2	587.9	2.39	0.21	2.60	2.01	4.40	11.9
0136R	1972	FORD	302	5.13	95.9	613.0	2.37	0.41	2.79	2.31	4.61	11.3
0137	1969	OLDS	455	5.75	165.5	765.4	2.07	0.30	2.37	1.89	5.10	8.5
0138	1968	AMC	343	6.67	112.6	421.2	1.54	0.17	1.71	1.54	1.35	14.3
0139	1972	PONT	350	6.48	133.6	629.1	1.96	0.18	2.14	1.71	5.40	10.3
0140	1966	CHEV	283	36.50	142.7	350.0	1.31	0.21	1.53	1.22	1.10	12.9
0141	1972	VOLK	97	2.64	30.2	385.1	5.15	1.77	6.92	5.53	3.80	20.1
0142	1967	OLDS	330	38.76	214.9	457.9	1.03	0.11	1.14	0.91	5.30	9.7
0143	1968	FORD	170	5.01	97.9	371.9	0.98	0.10	1.08	0.86	1.01	16.4
0144	1972	CHEV	350	4.42	78.7	619.9	2.07	0.34	2.41	2.17	0.50	11.7
0145	1972	CHEV	140	4.23	67.6	408.2	0.78	0.07	0.86	0.78	0.94	16.8
0146	1972	BUIC	350	5.17	85.8	688.9	3.40	0.57	3.97	3.22	1.70	10.6
0147	1967	MERC	390	7.18	114.9	496.2	2.78	0.39	3.16	2.52	5.00	12.7
0148	1966	OLDS	330	7.18	86.0	532.1	2.54	0.61	3.15	2.84	0.87	12.9

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0149	1971	FORD	170	7.33	85.8	319.4	1.68	0.34	2.02	1.60	6.43	18.6
0150	1970	CHEV	400	7.55	122.5	546.4	2.55	0.88	3.43	3.24	4.08	11.6
0151	1968	CHEV	307	6.50	64.8	549.6	4.45	1.07	5.52	4.35	0.16	13.2
0152	1972	PLYM	360	6.19	127.5	643.2	5.16	1.55	6.70	5.39	4.80	10.3
0152R	1972	PLYM	360	6.88	140.7	629.6	4.83	2.36	7.19	5.75	4.80	10.1
0153	1968	FORD	289	5.47	100.3	485.8	2.42	0.42	2.84	2.27	6.20	13.4
0154	1972	DODG	360	6.15	157.9	519.3	3.14	0.63	3.76	3.03	7.70	11.3
0155	1968	OLDS	350	5.44	76.8	565.1	3.14	0.57	3.71	2.96	5.90	12.6
0156	1969	MERC	390	7.88	80.5	633.1	5.17	2.55	7.73	6.30	0.14	11.3
0157	1967	PONT	326	9.37	129.2	493.9	1.52	0.19	1.71	1.44	0.79	12.2
0158	1970	PONT	400	7.18	95.7	740.1	5.26	1.87	7.13	6.51	5.62	9.7
0159	1972	FORD	351	6.35	126.9	745.0	2.93	0.63	3.56	3.40	0.29	9.2
0160	1971	PLYM	198	12.85	162.0	306.0	1.39	0.17	1.56	1.27	10.00	14.8
0160R	1971	PLYM	198	12.53	168.1	314.5	1.30	0.17	1.47	1.23	9.00	14.3
0161	1970	OLDS	455	6.68	135.7	661.4	2.99	0.50	3.49	2.83	9.80	9.9
0163	1970	CHEV	250	4.04	69.8	432.3	3.08	0.79	3.87	3.11	6.80	16.0
0163R	1970	CHEV	250	4.12	65.6	427.7	3.34	0.60	3.94	3.20	8.10	16.3
0164	1968	MERC	302	4.36	63.3	652.5	2.09	0.33	2.42	2.30	2.25	13.3
0165	1972	CHEV	350	5.56	120.0	619.0	2.08	0.29	2.36	2.27	8.64	10.8
0166	1971	DODG	383	11.48	206.5	591.3	1.36	0.14	1.50	1.54	6.65	9.3
0166R	1971	DODG	383	11.62	200.6	609.3	1.32	0.10	1.42	1.21	6.70	9.2
0167	1971	FORD	98	4.79	61.7	247.2	2.25	0.30	2.56	2.15	6.80	24.7
0168	1969	CHEV	307	6.66	79.9	420.2	2.95	0.38	3.33	2.79	2.60	15.7
0169	1972	CHEV	454	2.44	60.4	793.3	2.29	0.27	2.56	2.11	5.30	9.9
0170	1968	DODG	318	10.81	174.2	512.9	1.85	0.41	2.26	1.86	1.20	10.8
0171	1971	FORD	351	5.07	43.4	572.2	4.15	1.12	5.28	4.28	3.30	13.5
0172	1968	CHEV	307	26.14	422.4	425.6	0.62	0.06	0.68	0.57	6.30	7.6
0173	1966	FORD	200	6.99	61.5	357.0	2.70	1.07	3.77	3.15	3.50	18.7
0174	1969	DODG	383	5.72	111.6	676.0	2.98	0.41	3.39	2.74	3.50	10.2
0175	1970	FORD	302	5.32	50.3	459.5	2.57	0.50	3.06	2.60	0.19	16.0

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0176	1969	CHEV	307	4.60	50.2	426.4	2.57	0.36	2.93	2.49	2.20	17.1
0176R	1969	CHEV	307	4.28	50.0	435.2	2.45	0.92	3.37	2.76	0.43	16.8
0177	1971	PONT	350	9.33	163.6	684.5	1.72	0.15	1.86	1.75	5.72	9.1
0178	1972	DATS	97	4.18	29.9	321.2	2.11	0.30	2.41	2.03	5.40	23.3
0179	1970	CHRY	440	4.83	81.6	695.7	4.16	0.89	5.05	4.22	3.50	10.6
0180	1967	CHEV	283	38.08	178.0	396.3	1.29	0.15	1.44	1.20	7.50	11.1
0181	1968	CHEV	396	6.05	120.4	554.9	1.94	0.18	2.11	1.77	0.25	11.6
0182	1967	CHEV	230	7.87	142.3	338.2	1.63	0.84	2.48	2.07	7.60	15.1
0183	1967	AMC	232	5.52	95.2	312.5	1.77	0.55	2.31	1.93	6.00	18.5
0184	1966	PLYM	225	7.18	206.9	310.1	0.39	0.04	0.43	0.36	5.30	13.5
0185	1967	BUIC	300	10.34	143.5	407.5	1.78	0.20	1.98	1.68	7.20	13.3
0186	1972	BUIC	455	3.06	59.7	722.8	4.91	1.53	6.44	6.20	0.12	10.7
0187	1967	CHEV	283	12.47	216.3	455.9	0.84	0.05	0.89	0.97	5.90	10.6
0188	1972	PONT	400	4.92	60.9	661.4	2.34	0.91	3.25	3.06	2.84	11.5
0189	1971	LINC	460	6.32	95.8	636.6	3.80	1.06	4.86	4.89	6.23	11.0
0190	1967	CHEV	283	20.70	152.6	419.0	1.58	0.23	1.81	1.89	6.39	12.2
0191	1966	DODG	383	7.04	92.7	656.7	1.74	0.20	1.94	1.97	0.50	10.8
0192	1966	MERC	390	18.09	239.4	533.8	1.27	0.14	1.41	1.39	9.05	9.2
0193	1971	OLDS	455	5.35	52.5	718.4	3.19	0.98	4.17	4.20	1.89	10.9
0194	1969	PLYM	225	3.31	45.7	355.4	4.30	1.28	5.58	5.53	7.52	20.3
0195	1972	TOYO	97	4.99	80.1	293.7	1.53	0.22	1.75	1.75	2.84	20.4
0196	1971	PONT	455	5.43	96.9	533.8	1.28	0.14	1.42	1.39	5.59	12.6
0197	1972	PLYM	360	7.21	106.8	595.4	3.56	1.09	4.65	4.33	2.16	11.3
0197R	1972	PLYM	360	6.58	108.4	603.6	3.39	0.67	4.06	3.77	2.20	11.1
0198	1972	DODG	225	4.93	100.1	380.8	2.72	0.48	3.20	3.02	6.79	16.0
0199	1969	FORD	200	5.67	80.8	351.3	2.01	0.19	2.20	1.93	7.12	17.9
0200	1966	CHEV	250	12.02	161.2	281.1	0.98	0.12	1.10	1.15	5.92	15.5
0201	1967	DODG	225	12.79	232.5	284.5	0.28	0.05	0.32	0.35	7.20	12.9
0202	1970	AMC	390	6.31	79.1	506.3	2.93	0.62	3.55	3.19	3.56	13.6
0203	1972	CHEV	350	4.71	105.7	553.1	2.58	0.39	2.97	2.63	7.36	12.1

TABLE 13A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0301	1966	FORD	390	8.17	72.1	581.1	3.29	1.75	5.04	4.45	3.93	12.3
0302	1972	CHEV	350	3.18	71.3	856.4	2.97	1.00	3.97	3.51	0.12	9.1
0303	1970	CHEV	350	4.77	147.7	632.6	2.07	0.32	2.39	2.08	7.89	10.1
0304	1970	OLDS	455	13.28	168.9	662.9	1.64	0.46	2.09	1.82	7.62	9.1
0305	1971	CHEV	350	3.22	61.1	554.8	4.92	0.59	5.51	4.75	0.10	13.4
0306	1966	CHEV	283	9.50	118.2	464.8	1.86	0.72	2.58	2.35	2.62	13.0
0307	1971	FORD	429	5.33	101.9	571.9	1.96	0.51	2.46	2.18	5.40	11.8
0308	1972	OLDS	350	3.52	59.5	643.3	3.59	1.42	5.01	4.53	0.41	11.9
0309	1971	CHEV	400	2.52	37.7	656.3	3.47	1.22	4.69	4.32	1.45	12.3
0310	1971	VOLK	97	2.85	46.3	312.1	1.93	0.34	2.28	2.12	1.53	22.5
0311	1968	AMC	290	4.16	63.6	539.2	2.19	2.56	4.75	4.05	8.73	13.6
0312	1972	CHEV	400	2.71	26.6	717.6	4.29	0.86	5.15	4.50	0.41	11.6
0313	1966	CHEV	283	9.73	135.1	459.7	3.53	0.85	4.37	3.69	6.86	12.6
0314	1972	FORD	400	29.22	69.9	588.9	4.27	1.50	5.76	4.91	2.00	10.8
0315	1966	PONT	389	6.27	67.8	552.4	3.79	1.96	5.75	5.12	1.60	13.1
0316	1970	VOLK	97	4.94	53.1	320.2	2.49	0.59	3.08	2.70	4.70	21.2
0317	1972	BUIC	455	2.17	24.5	815.5	5.51	2.60	8.11	7.35	0.93	10.3
0318	1969	CHEV	307	3.57	53.5	519.6	4.10	1.60	5.71	5.37	1.00	14.4
0319	1972	CHEV	350	2.64	32.7	642.4	2.88	0.84	3.71	3.43	1.37	12.6
0320	1966	CHEV	194	4.74	67.1	337.9	2.52	0.54	3.06	2.85	0.74	19.4
0322	1971	CHEV	350	4.27	67.4	626.0	4.99	1.67	6.65	5.96	1.06	11.9
0323	1968	CADI	472	3.97	82.5	694.5	4.15	1.36	5.52	5.03	0.56	10.6
0324	1966	PONT	326	7.84	76.7	472.4	4.40	1.76	6.15	5.83	2.40	14.4
0325	1969	CADI	472	5.42	83.1	705.4	4.66	2.99	7.65	7.35	0.65	10.4
0326	1972	TOYO	120	2.08	29.1	395.2	3.07	0.81	3.88	3.65	3.80	19.8
0327	1971	FORD	351	5.22	71.0	597.2	3.56	0.69	4.25	4.08	2.00	12.2
0328	1971	OLDS	455	4.06	64.6	717.7	4.89	2.75	7.63	7.28	5.00	10.7
0329	1969	FORD	200	3.28	30.4	477.9	3.85	1.76	5.61	5.26	0.59	16.6
0330	1969	OLDS	350	7.32	138.6	482.8	2.08	0.30	2.37	2.20	2.29	12.3
0330R	1969	OLDS	350	6.51	103.4	508.2	3.05	0.85	3.90	3.45	4.90	12.8

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0331	1971	BUIC	455	3.16	47.6	805.7	4.96	2.44	7.41	6.98	2.29	10.0
0331R	1971	BUIC	455	3.40	53.9	761.5	4.44	1.63	6.07	5.56	3.30	10.3
0332	1966	AMC	232	14.14	112.9	370.6	1.62	0.40	2.02	1.88	1.45	15.0
0333	1972	CADI	472	1.32	20.0	861.5	1.76	2.09	3.85	3.59	0.70	9.9
0334	1970	CHRY	440	4.40	61.1	700.5	3.69	1.10	4.79	4.53	1.86	11.0
0335	1967	VOLK	91	3.97	60.7	276.4	2.53	0.94	3.46	2.95	1.63	23.1
0336	1971	TOYO	71	5.97	24.5	347.5	3.40	0.88	4.28	4.54	2.07	21.9
0337	1970	FORD	351	34.46	138.4	451.6	3.61	1.29	4.90	4.37	4.00	11.4
0338	1969	CHEV	307	3.74	49.7	500.7	3.64	1.26	4.89	4.34	1.95	15.0
0339	1971	BUIC	350	4.03	116.6	659.4	3.09	2.62	5.71	5.09	5.00	10.4
0341	1972	OLDS	455	1.55	10.4	859.2	4.48	5.13	9.61	8.96	0.11	10.1
0342	1969	OLDS	455	4.13	89.9	626.3	4.56	2.22	6.79	6.28	1.73	11.4
0343	1970	CHEV	307	5.60	85.8	411.0	2.86	0.58	3.44	3.16	4.40	15.7
0344	1971	FORD	97	2.70	23.4	319.2	3.12	0.74	3.86	3.56	3.64	24.3
0346	1971	PLYM	318	2.56	33.9	591.2	4.15	1.38	5.53	5.09	0.79	13.6
0347	1969	PONT	350	4.76	85.0	531.6	5.31	2.05	7.36	6.43	1.60	13.0
0348	1967	PONT	400	8.26	76.3	506.6	5.82	2.68	8.51	7.53	7.60	13.6
0350	1972	FORD	351	2.79	39.8	667.5	3.76	0.95	4.71	3.88	3.15	12.0
0351	1968	CHEV	396	4.76	91.2	523.3	2.91	0.50	3.41	3.02	2.10	13.0
0353	1970	CHEV	350	6.48	135.6	517.1	2.24	0.43	2.67	2.20	3.54	11.8
0354	1972	PLYM	360	4.27	86.6	627.3	5.45	2.78	8.23	7.51	8.05	11.4
0355	1971	CHEV	350	4.16	30.4	625.7	4.67	1.61	6.28	5.95	1.95	12.9
0356	1972	PLYM	318	3.45	53.5	531.8	5.42	1.90	7.31	6.83	4.91	14.2
0357	1967	PLYM	318	4.72	49.5	476.1	4.40	1.68	6.07	5.59	1.19	15.6
0358	1972	PONT	400	2.12	18.9	667.8	2.81	0.99	3.80	3.60	0.46	12.6
0359	1972	FORD	302	3.28	58.6	646.1	2.29	0.46	2.75	2.61	2.14	11.9
0360	1968	OLDS	350	4.83	77.2	573.8	2.87	0.44	3.31	3.08	4.13	12.5
0361	1972	MERC	400	2.18	21.8	737.6	5.28	2.86	8.14	7.38	0.10	11.4
0362	1968	CHEV	307	6.58	59.0	493.6	4.47	2.35	6.82	6.37	6.09	14.6
0363	1972	AMC	258	0.69	8.6	413.1	1.14	0.26	1.39	1.33	0.17	20.7

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0364	1969	PLYM	318	5.89	86.3	538.4	3.83	1.79	5.62	5.77	2.68	12.8
0365	1972	CHRY	400	5.93	107.0	713.6	3.51	1.22	4.73	4.70	5.30	9.9
0366	1972	FORD	122	3.61	35.9	355.9	2.83	0.50	3.32	3.31	5.11	20.9
0367	1972	FORD	351	3.42	50.5	660.1	4.05	0.95	5.01	5.18	3.04	11.8
0368	1972	DODG	225	3.49	71.8	452.9	3.64	1.35	4.98	5.19	6.09	15.4
0369	1971	DODG	225	3.99	68.3	434.5	3.66	1.05	4.71	4.95	3.64	16.0
0370	1968	DODG	318	4.41	116.7	464.5	2.05	0.20	2.25	2.20	0.33	13.4
0371	1969	FORD	302	4.69	51.6	523.9	5.18	2.60	7.79	7.61	4.13	14.3
0372	1966	OLDS	330	11.48	139.0	537.7	3.40	0.64	4.04	3.87	7.50	11.2
0374	1968	FORD	289	5.81	68.3	506.0	2.30	0.92	3.22	2.88	3.23	14.0
0375	1970	MERC	429	6.70	79.7	784.4	6.94	2.40	9.35	8.44	0.28	9.5
0376	1972	DATS	97	2.09	23.2	350.9	2.96	0.78	3.74	3.62	5.30	22.5
0377	1967	CHEV	283	8.22	98.7	562.5	3.50	1.23	4.73	4.68	4.42	11.9
0378	1969	VOLK	91	4.70	46.6	327.0	3.03	0.76	3.79	3.86	4.81	21.4
0379	1972	FORD	302	3.42	32.5	606.0	2.66	0.43	3.09	3.08	2.06	13.3
0380	1967	CHEV	327	7.19	106.0	604.5	2.40	0.54	2.93	2.79	6.86	11.2
0381	1967	CHEV	283	15.37	123.9	504.3	2.16	0.54	2.70	2.65	3.05	11.9
0382	1968	CHEV	307	10.34	108.3	525.9	2.29	0.51	2.80	2.82	7.50	12.2
0383	1972	CHEV	140	3.80	54.0	457.6	2.19	0.36	2.54	2.55	1.40	16.0
0384	1970	PONT	400	4.53	68.3	723.4	3.83	1.10	4.93	5.05	5.50	10.5
0385	1968	MERC	302	3.68	13.6	633.3	3.35	0.99	4.34	4.80	0.39	13.3
0385R	1968	MERC	302	4.18	13.3	613.3	3.17	0.81	3.97	4.26	1.20	13.7
0386	1966	FORD	200	12.55	153.6	416.3	0.92	0.07	0.98	1.07	1.94	12.7
0387	1969	CHEV	350	7.96	83.9	610.3	2.92	0.86	3.78	4.01	9.10	11.6
0388	1966	VOLK	78	6.10	76.3	335.2	2.13	0.27	2.40	2.52	0.36	18.7
0389	1971	DODG	383	10.50	275.6	653.6	0.94	0.26	1.20	1.27	6.86	7.9
0390	1969	CHEV	350	4.11	76.6	556.1	2.02	0.61	2.64	2.85	5.21	12.9
0391	1971	FORD	302	3.35	40.4	664.8	2.05	0.57	2.62	2.71	2.10	12.0
0392	1972	VOLK	97	3.88	57.7	393.0	2.19	0.35	2.54	2.72	3.60	17.9
0393	1971	CHEV	307	4.74	90.6	558.2	3.59	1.12	4.71	5.13	5.79	12.4

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0393R	1971	CHEV	307	4.16	73.7	514.9	3.60	0.61	4.21	4.33	5.21	13.7
0394	1967	AMC	232	3.44	43.6	351.4	3.60	1.21	4.80	5.24	5.11	20.6
0395	1968	CHEV	327	30.31	95.4	516.1	2.15	0.56	2.71	2.56	2.00	11.6
0396	1971	OLDS	350	4.67	57.9	740.6	4.99	2.29	7.28	7.36	3.20	10.5
0397	1967	BUIC	300	8.08	150.4	537.1	2.40	0.46	2.86	2.91	6.50	11.1
0397R	1967	BUIC	300	7.96	160.2	534.9	2.46	0.32	2.78	3.04	6.40	10.9
0398	1972	BUIC	350	2.84	37.2	746.1	3.37	0.52	3.89	4.14	2.40	10.9
0399	1968	FORD	390	5.11	61.2	712.8	4.88	2.34	7.22	7.43	1.13	10.8
0400	1972	CHEV	350	3.37	71.0	678.2	2.59	0.62	3.21	3.42	7.31	11.1
0401	1970	FORD	302	3.16	69.7	548.9	2.34	0.67	3.01	3.23	3.10	13.3
0401R	1970	FORD	302	4.08	70.7	548.8	3.61	1.04	4.65	4.42	2.51	13.1
0402	1971	CHEV	402	3.42	65.6	709.1	2.93	0.85	3.78	3.95	6.55	10.8
0403	1970	PLYM	318	2.70	30.3	526.5	3.79	1.18	4.97	5.19	1.73	15.2
0404	1970	FORD	200	4.13	21.1	338.6	3.18	0.99	4.17	4.22	0.66	23.1
0405	1970	OLDS	350	3.50	43.3	557.2	2.48	0.66	3.14	3.12	3.71	13.9
0405R	1970	OLDS	350	3.92	43.5	523.8	3.02	0.61	3.63	3.45	3.93	14.6
0406	1969	PONT	400	4.10	75.1	643.4	2.20	0.57	2.77	2.92	1.82	11.5
0407	1966	BUIC	340	13.99	208.0	429.7	0.67	0.08	0.74	0.83	5.70	11.1
0408	1970	FORD	250	5.60	138.6	470.3	1.23	0.12	1.35	1.53	1.14	12.6
0409	1971	MERC	351	3.48	63.5	652.8	2.84	0.54	3.39	3.84	3.00	11.6
0410	1967	OLDS	330	8.16	105.6	520.7	2.32	0.25	2.57	2.76	0.63	12.5
0412	1968	BUIC	430	5.79	75.8	640.6	5.17	1.70	6.87	6.79	3.60	11.4
0413	1967	FORD	289	6.33	100.4	381.5	1.18	0.29	1.46	1.40	0.27	15.9
0414	1966	CADI	429	5.61	100.8	664.7	2.81	0.64	3.45	3.34	2.51	10.6
0414R	1966	CADI	429	5.81	102.7	709.3	3.14	0.82	3.96	3.71	2.35	9.9
0415	1969	FORD	302	5.55	46.8	466.1	5.45	2.07	7.52	7.22	4.32	15.9
0416	1971	FORD	351	5.23	80.5	649.2	6.03	2.21	8.24	7.60	5.30	11.2
0417	1969	PLYM	225	3.17	39.7	512.0	4.31	1.17	5.48	4.85	3.70	15.2
0418	1969	FORD	351	5.20	54.0	496.9	3.86	1.18	5.04	4.58	5.79	14.8
0419	1967	PONT	326	11.03	82.0	447.7	3.68	0.91	4.60	4.15	5.21	14.5

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0420	1970	FORD	351	4.37	61.2	527.5	5.75	1.71	7.46	6.76	2.91	13.9
0421	1972	CHEV	307	3.58	11.2	612.4	3.54	0.92	4.46	4.24	0.12	13.8
0422	1966	PLYM	225	4.49	61.2	393.0	2.91	0.53	3.44	3.30	0.14	17.6
0423	1971	PONT	455	2.74	27.3	825.1	4.81	2.06	6.87	6.79	0.18	10.1
0424	1969	BUIC	430	6.76	118.3	545.1	4.73	1.65	6.37	6.16	6.55	11.8
0425	1969	FORD	390	3.99	25.6	621.1	5.75	2.87	8.63	8.28	0.08	13.2
0426	1971	PONT	350	4.27	117.6	907.5	2.68	0.49	3.17	3.07	7.16	8.0
0427	1968	PONT	400	5.38	62.8	534.0	4.78	0.34	5.12	5.03	3.20	13.7
0428	1972	PONT	350	4.64	27.5	682.6	3.10	0.34	3.43	3.45	0.19	12.0
0428R	1972	PONT	350	4.68	24.3	668.8	2.92	0.37	3.29	3.80	0.55	12.3
0429	1968	FORD	289	3.74	36.8	490.3	4.82	0.42	5.24	5.38	5.11	15.8
0430	1966	FORD	289	15.34	150.6	375.1	1.34	0.14	1.48	1.63	0.84	13.4
0431	1970	BUIC	350	4.74	87.1	548.8	2.87	0.38	3.25	3.59	3.00	12.7
0432	1968	CHRY	383	14.67	155.2	529.0	2.72	0.30	3.02	3.37	3.10	10.8
0434	1969	CHEV	230	5.38	58.8	475.7	3.81	1.05	4.87	5.63	0.14	15.2
0435	1971	CHEV	140	3.94	53.1	280.8	1.38	0.14	1.52	1.80	7.62	23.6
0436	1972	CHEV	350	4.15	44.5	485.6	2.06	0.38	2.43	2.76	5.64	15.6
0437	1972	BUIC	455	2.16	19.1	754.4	4.33	2.03	6.36	6.94	1.82	11.2
0437R	1972	BUIC	455	2.28	24.6	766.1	4.65	1.59	6.25	7.16	1.40	10.9
0438	1970	PONT	350	2.35	35.4	623.7	2.39	0.37	2.75	2.97	2.24	12.9
0439	1966	MERC	390	8.15	166.7	662.7	2.00	0.35	2.35	2.59	2.62	9.3
0440	1967	DODG	225	3.59	64.6	375.1	3.08	0.74	3.82	4.19	4.60	18.2
0441	1966	CHEV	283	13.65	139.0	411.5	2.21	0.41	2.62	3.13	7.31	13.2
0442	1968	FORD	200	4.78	20.2	443.6	3.44	1.29	4.73	5.45	0.65	18.1
0443	1967	FORD	289	8.86	80.5	471.8	2.30	0.45	2.75	3.12	2.66	14.2
0444	1970	PLYM	225	4.38	52.0	351.0	2.38	0.49	2.86	3.18	5.40	19.9
0445	1971	FORD	200	2.23	14.9	395.4	2.41	0.48	2.90	3.19	0.41	20.8
0446	1967	FORD	390	7.03	192.1	454.3	0.85	0.06	0.90	1.00	4.13	11.4
0447	1967	CHRY	383	5.84	88.2	442.3	2.58	0.64	3.23	3.56	3.23	14.8
0448	1970	AMC	304	4.44	39.8	549.7	3.56	0.76	4.33	4.88	1.82	14.2

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0449	1970	BUIC	455	7.24	96.4	672.1	3.64	0.82	4.46	5.40	3.50	10.5
0450	1969	BUIC	350	8.41	156.2	486.5	3.34	0.68	4.02	4.86	8.05	11.7
0451	1971	VOLK	97	4.28	55.7	334.1	2.51	0.32	2.83	3.25	8.28	20.4
0452	1970	VOLK	97	3.06	39.0	339.1	3.15	0.57	3.71	3.62	1.60	21.6
0453	1968	PONT	350	7.40	123.8	460.2	1.81	0.20	2.01	1.90	3.03	13.1
0454	1971	PLYM	198	4.36	47.1	409.8	4.46	1.04	5.49	4.87	5.40	17.8
0455	1972	FORD	429	3.79	56.4	689.7	4.46	1.88	6.35	5.38	3.20	11.2
0456	1970	DODG	318	3.43	22.0	544.3	4.88	1.45	6.33	5.46	0.30	15.1
0457	1970	TOYO	71	2.39	19.7	338.0	4.48	1.47	5.95	5.09	1.50	23.6
0458	1967	CHEV	283	40.69	143.2	428.5	2.82	0.64	3.46	2.94	6.40	11.3
0459	1968	PLYM	318	4.70	51.3	511.9	2.76	0.46	3.22	3.61	0.60	14.6
0460	1966	DODG	383	11.77	339.4	564.5	0.47	0.02	0.49	0.57	3.60	7.8
0461	1971	DATS	97	2.41	8.6	280.1	2.49	0.51	3.00	3.43	0.15	29.5
0462	1969	DODG	383	6.61	92.9	508.1	2.52	0.29	2.80	3.18	3.20	13.1
0463	1969	MERC	429	8.99	117.1	737.0	1.95	0.27	2.22	2.57	7.10	9.3
0464	1972	PLYM	360	5.58	85.1	629.5	4.05	1.18	5.23	6.17	3.90	11.4
0465	1971	LINC	460	4.71	87.6	702.1	4.15	0.76	4.92	5.81	6.40	10.4
0466	1972	VOLK	103	3.58	22.6	361.1	3.80	0.40	4.20	4.96	0.31	21.8
0467	1971	OPEL	116	3.63	53.3	399.5	3.09	0.62	3.71	4.71	6.55	17.9
0468	1968	CHEV	250	5.92	49.4	413.1	2.01	0.08	2.09	2.77	0.89	17.4
0469	1970	DODG	383	9.17	29.6	740.9	1.51	0.15	1.66	1.85	0.18	10.9
0470	1972	DODG	360	6.76	27.7	586.5	5.08	1.60	6.68	7.46	2.00	13.6
0471	1968	FORD	429	10.03	247.3	658.4	1.10	0.09	1.20	1.41	4.40	18.2
0472	1967	CHEV	194	8.55	102.0	399.8	2.25	0.28	2.53	3.12	2.90	15.1
0473	1970	FORD	351	4.79	68.7	541.1	3.82	0.74	4.57	5.50	4.60	13.4
0474	1968	VOLK	91	22.58	155.7	242.9	0.92	0.14	1.06	1.32	7.10	15.9
0475	1972	CHEV	402	2.02	76.8	648.5	5.08	2.62	7.70	7.05	0.60	11.4
0476	1970	CHEV	454	14.25	355.5	504.2	0.54	0.05	0.59	0.56	5.30	8.0
0477	1970	CHEV	250	6.36	30.4	448.2	4.49	1.80	6.29	5.95	0.60	17.2
0478	1967	MERC	289	7.46	103.1	509.6	3.54	1.05	4.59	4.21	0.60	12.8

TABLE 13A

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0501	1971	FORD	351	5.44	65.6	487.5	3.50	1.84	5.34	4.88	6.95	14.6
0502	1972	AMC	258	3.67	52.7	445.4	3.64	1.33	4.97	4.61	5.60	16.4
0503	1972	BUIC	455	2.37	32.5	817.8	3.84	1.78	5.62	5.54	1.88	10.1
0504	1972	FORD	351	5.93	97.7	730.5	3.20	1.18	4.38	4.13	3.40	9.8
0505	1971	FORD	302	3.15	52.1	587.9	2.74	0.85	3.60	3.25	3.60	13.1
0506	1971	DODG	225	3.20	70.2	379.6	3.00	0.62	3.62	3.27	5.90	17.7
0507	1971	FORD	351	3.58	51.0	553.3	4.17	1.82	5.99	5.16	4.12	13.8
0508	1971	FORD	200	2.66	23.1	379.7	3.41	2.13	5.54	4.83	1.97	20.9
0509	1971	VOLK	97	3.84	43.0	337.9	2.28	1.27	3.55	3.11	0.96	21.3
0510	1972	OLDS	455	1.76	9.5	753.2	3.95	1.70	5.66	4.90	0.22	11.5
0511	1972	FORD	351	2.20	16.6	663.9	4.21	1.47	5.68	4.89	0.26	12.7
0512	1970	OLDS	350	4.03	80.9	497.9	3.47	0.90	4.37	3.76	4.32	13.9
0513	1971	PONT	455	3.40	73.3	622.3	3.61	1.02	4.63	4.00	6.89	11.9
0514	1970	MERC	429	4.21	39.4	724.9	6.39	2.55	8.94	7.64	3.62	11.1
0515	1970	PONT	400	4.26	51.1	558.2	3.60	1.46	5.06	4.21	3.48	13.6
0516	1970	PLYM	318	4.84	66.6	509.8	4.61	2.77	7.39	6.12	7.00	14.1
0517	1972	CHEV	400	3.00	68.8	729.7	3.54	1.26	4.80	3.91	5.45	10.5
0518	1970	FORD	351	4.53	95.6	523.1	3.68	1.03	4.71	3.90	5.22	12.9
0519	1969	FORD	302	4.03	55.6	430.9	4.14	1.81	5.95	4.82	5.40	16.7
0520	1972	BUIC	455	2.09	28.1	750.2	5.11	2.74	7.85	6.33	2.40	11.1
0521	1967	VOLK	91	9.58	73.7	176.6	0.80	0.08	0.88	0.72	5.40	27.5
0522	1968	FORD	200	2.23	42.2	373.7	2.61	0.51	3.12	2.81	3.83	19.9
0523	1971	LINC	460	2.92	48.5	732.5	3.97	1.49	5.46	4.98	3.01	10.9
0524	1971	CHEV	350	2.92	40.1	559.1	2.94	1.79	4.73	4.29	2.83	14.1
0525	1969	OLDS	350	5.59	87.4	506.4	3.12	0.77	3.89	3.61	5.52	13.4
0526	1969	FORD	390	4.51	92.4	519.2	3.20	0.81	4.02	3.71	5.37	13.1
0527	1970	CHEV	350	3.50	43.0	469.2	4.28	1.61	5.89	5.48	3.74	16.2
0528	1966	FORD	200	24.94	46.0	356.7	3.78	1.32	5.10	4.71	5.38	17.5
0529	1967	PONT	400	6.30	82.5	542.7	3.55	1.62	5.17	4.78	6.80	12.8
0530	1972	VOLK	103	2.39	17.5	378.2	2.30	0.70	3.01	2.76	0.12	21.5

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0531	1970	BUIC	350	5.34	84.3	517.3	3.32	0.99	4.31	3.98	1.50	13.3
0532	1968	PLYM	273	3.68	46.3	452.5	4.44	1.32	5.76	5.49	1.05	16.5
0533	1969	BUIC	350	3.80	71.7	527.4	4.65	1.95	6.60	6.17	7.23	13.6
0534	1969	FORD	302	4.96	62.8	520.5	5.25	2.07	7.32	6.74	4.92	14.0
0535	1966	CHEV	194	4.24	75.1	369.6	1.83	0.26	2.09	1.95	4.00	17.7
0536	1972	PLYM	318	2.89	40.4	502.5	3.87	1.13	5.00	4.76	3.50	15.4
0537	1972	FORD	302	2.86	5.3	486.3	2.99	1.02	4.02	3.94	1.31	17.6
0538	1972	BUIC	350	3.03	55.9	638.5	3.46	1.03	4.49	4.31	2.50	12.1
0539	1971	DODG	383	6.05	124.4	546.9	2.93	0.76	3.69	3.63	7.23	11.7
0540	1972	CHEV	307	2.77	25.5	575.0	2.92	0.66	3.57	3.51	2.48	14.2
0541	1969	BUIC	430	5.78	93.5	547.1	4.67	1.57	6.24	6.04	7.23	12.5
0542	1972	VOLK	97	3.14	38.7	373.1	2.37	0.56	2.93	2.84	2.46	20.0
0543	1966	PONT	389	5.55	59.2	543.0	3.03	0.61	3.64	3.43	0.19	13.6
0544	1968	MERC	302	3.02	24.5	418.8	3.03	1.14	4.17	3.93	1.40	19.0
0545	1967	CHEV	283	9.73	125.5	447.8	2.02	0.49	2.51	2.36	5.85	13.1
0546	1967	PLYM	318	6.81	133.1	448.9	1.94	0.42	2.36	2.24	4.42	13.1
0547	1971	OLDS	350	2.76	39.1	566.7	3.80	0.85	4.65	4.38	2.12	13.9
0548	1972	OLDS	350	3.32	33.8	662.2	3.21	0.83	4.04	3.81	3.77	12.2
0549	1969	CHEV	327	15.25	255.0	423.9	0.64	0.02	0.66	0.62	6.00	10.2
0550	1972	CHRY	400	5.16	108.4	595.4	3.17	0.92	4.08	3.85	7.43	11.3
0551	1971	BUIC	350	6.06	78.5	570.2	1.89	0.33	2.22	2.20	5.32	12.5
0552	1972	TOYO	120	1.84	20.0	375.3	2.41	0.50	2.91	2.97	1.78	21.5
0553	1971	PLYM	198	3.18	66.9	342.9	2.42	0.55	2.97	2.96	3.82	19.4
0554	1971	OPEL	116	1.73	41.9	406.3	1.24	0.06	1.30	1.26	7.06	18.6
0555	1968	OLDS	350	5.51	87.1	546.4	2.33	0.30	2.62	2.68	5.22	12.7
0556	1970	BUIC	455	6.30	139.0	555.0	2.83	0.44	3.27	3.31	5.08	11.2
0557	1971	VOLK	97	3.21	40.6	287.5	1.92	0.14	2.06	2.06	1.11	24.6
0558	1970	CHEV	350	4.20	68.6	497.7	3.08	0.73	3.82	3.11	3.82	14.3
0559	1970	CHRY	440	4.06	26.8	616.4	4.71	0.49	5.21	4.97	0.15	13.2
0560	1972	PLYM	360	5.28	112.4	575.4	4.84	2.01	6.84	6.53	6.50	11.5

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0561	1970	CHEV	400	6.49	115.9	491.7	2.28	0.37	2.65	2.17	6.60	12.8
0562	1972	CADI	472	0.45	20.7	1031.7	2.44	0.44	2.87	2.86	1.35	8.3
0563	1970	FORD	302	3.76	56.1	499.7	2.57	0.51	3.09	3.03	4.65	14.8
0564	1969	DODG	383	11.48	74.1	421.8	2.99	1.36	4.35	4.39	5.05	15.4
0565	1970	FORD	250	3.49	19.4	477.0	4.96	2.05	7.01	7.37	0.36	17.1
0567	1968	CHEV	164	8.21	94.6	340.2	1.83	0.27	2.11	2.14	7.79	17.2
0568	1968	BUIC	430	4.95	55.4	573.0	3.68	0.79	4.48	4.67	1.13	13.1
0569	1972	DODG	225	2.54	36.2	412.9	3.90	1.13	5.03	5.21	0.21	18.6
0570	1966	CADI	429	6.42	147.4	556.7	1.79	0.22	2.01	2.10	2.97	11.0
0571	1970	VOLK	97	3.73	47.8	310.9	2.32	0.59	2.91	2.52	5.50	22.3
0572	1970	PONT	350	3.92	71.2	635.0	2.93	0.58	3.51	3.02	5.10	11.7
0573	1966	CHEV	283	6.99	91.6	429.4	2.78	0.97	3.74	3.15	5.00	14.9
0574	1968	CHEV	327	7.16	53.4	450.3	3.62	1.27	4.88	4.20	5.38	15.9
0575	1970	FORD	200	3.00	48.8	352.1	2.24	0.34	2.58	2.26	0.91	20.3
0576	1968	CHRY	383	5.95	89.5	491.2	4.08	2.16	6.24	5.47	3.82	13.6
0577	1972	FORD	122	2.74	39.9	345.0	2.53	0.55	3.08	2.72	3.13	21.3
0578	1968	CHEV	396	7.56	78.3	376.3	1.43	0.14	1.56	1.37	2.78	17.0
0579	1969	VOLK	91	4.49	58.1	299.7	2.00	0.32	2.32	1.99	5.32	21.9
0580	1972	FORD	400	3.37	54.1	509.4	4.40	2.46	6.86	6.09	2.13	14.7
0581	1969	CHEV	350	6.25	122.7	504.4	3.46	0.88	4.34	3.74	4.72	12.4
0583	1969	FORD	351	3.26	23.5	578.1	5.24	3.33	8.57	7.03	0.56	14.2
0584	1971	CHEV	140	7.34	60.8	324.8	1.91	0.44	2.34	1.98	3.00	20.0
0585	1968	CHEV	307	5.05	43.2	552.4	5.60	4.47	10.07	8.45	3.50	13.9
0586	1970	FORD	351	3.47	39.3	611.9	5.03	2.47	7.50	6.25	0.22	13.0
0587	1971	FORD	98	5.71	94.5	273.9	1.58	0.22	1.80	1.51	3.60	20.1
0588	1972	DODG	360	4.01	61.0	676.4	5.73	2.14	7.88	6.37	2.20	11.3
0589	1968	DODG	318	5.04	84.7	451.4	4.19	1.24	5.43	4.34	3.12	14.8
0590	1971	BUIC	455	3.23	52.4	781.7	3.17	1.80	4.97	4.40	3.05	10.2
0591	1967	FORD	289	5.92	89.3	466.6	3.39	1.55	4.95	4.25	3.22	14.2
0592	1971	CHEV	350	2.64	20.8	617.3	4.13	1.71	5.84	5.01	0.10	13.5

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0592R	1971	CHEV	350	2.61	22.6	606.8	4.46	1.31	5.77	4.88	0.11	13.6
0593	1968	FORD	289	3.92	43.6	517.1	3.99	1.65	5.65	4.86	2.13	14.8
0594	1970	VOLK	97	2.96	46.6	348.4	2.88	0.80	3.68	3.12	2.66	20.6
0594R	1970	VOLK	97	2.87	44.6	331.8	2.95	0.64	3.59	3.03	2.76	21.6
0595	1969	CADI	472	3.32	56.2	714.7	5.40	2.61	8.01	6.88	2.00	10.9
0596	1968	CHEV	307	4.75	69.5	525.8	4.39	2.08	6.46	5.35	3.40	13.7
0597	1972	MERC	400	2.41	22.0	683.0	5.26	3.07	8.33	7.00	0.10	12.2
0598	1971	OLDS	455	4.37	106.2	670.8	4.04	2.01	6.05	5.01	7.26	10.4
0598R	1971	OLDS	455	4.11	97.7	684.2	4.32	2.53	6.85	5.70	7.10	10.4
0599	1972	CHEV	350	3.47	61.4	647.0	3.48	1.25	4.73	3.88	5.32	11.8
0599R	1972	CHEV	350	3.84	61.0	654.1	3.66	1.32	4.97	3.94	5.30	11.6
0600	1971	PONT	350	5.17	76.0	569.5	3.10	1.22	4.33	3.55	7.55	12.6
0601	1969	MERC	390	4.33	71.7	603.9	5.97	2.47	8.44	6.99	4.10	12.2
0602	1966	PONT	326	11.44	120.2	549.7	3.53	1.10	4.63	3.75	6.03	11.5
0603	1971	CHEV	307	11.23	60.9	495.5	3.31	1.29	4.60	3.75	1.33	14.2
0604	1971	TOYO	96	11.72	183.5	243.4	0.45	0.02	0.47	0.38	2.45	15.6
0605	1967	OLDS	330	3.49	33.7	544.9	3.35	1.03	4.38	3.69	0.42	14.6
0606	1969	CHEV	307	3.82	41.5	491.2	4.35	1.47	5.82	5.04	2.13	15.6
0607	1966	CHEV	283	9.17	77.5	490.9	3.39	1.03	4.42	3.76	0.10	13.8
0608	1971	CHEV	400	4.95	80.8	627.6	3.21	0.84	4.06	3.53	2.92	11.5
0609	1970	PLYM	225	3.66	77.1	400.0	4.28	1.64	5.92	5.00	0.80	16.7
0610	1968	CADI	472	3.37	25.4	743.4	5.91	3.40	9.31	8.02	0.17	11.2
0611	1968	VOLK	91	7.50	83.3	293.0	1.79	0.59	2.38	1.98	7.30	19.8
0612	1966	PLYM	225	3.65	43.9	382.6	4.44	2.11	6.55	5.46	1.33	19.2
0613	1969	PLYM	225	2.85	52.8	372.9	3.63	1.09	4.72	3.50	1.78	19.1
0613R	1969	PLYM	225	2.97	57.2	370.2	3.38	1.44	4.82	3.99	1.90	18.9
0614	1967	PONT	326	5.06	70.8	496.7	4.22	1.79	6.02	4.98	6.00	14.2
0615	1969	OLDS	455	5.04	65.5	642.6	5.44	2.54	7.97	6.64	1.40	11.7
0616	1967	BUIC	340	5.86	121.7	503.9	2.90	0.60	3.50	2.78	4.20	12.4
0617	1969	PONT	350	5.18	86.0	573.1	4.77	3.20	7.97	7.07	3.52	12.2

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0619	1968	FORD	390	17.86	62.6	485.5	3.93	1.59	5.52	4.74	4.22	13.9
0620	1972	CHEV	350	2.64	36.3	600.8	2.85	1.02	3.87	3.13	2.71	13.3
0621	1968	PONT	400	31.01	55.3	530.8	3.85	0.94	4.80	4.00	8.32	12.4
0622	1971	CHEV	350	4.05	48.9	552.8	3.95	1.88	5.83	4.72	2.09	13.8
0623	1967	FORD	390	6.93	96.9	555.2	4.69	2.16	6.85	5.80	5.50	12.2
0623R	1967	FORD	390	5.60	68.7	537.6	4.86	2.42	7.28	6.20	5.52	13.3
0624	1972	FORD	351	3.24	40.7	793.2	4.08	2.30	6.38	5.14	1.08	10.2
0624R	1972	FORD	351	3.30	46.8	770.0	4.10	1.98	6.09	4.80	0.65	10.3
0625	1972	CHEV	402	1.40	28.2	729.5	3.28	1.20	4.49	3.71	1.90	11.4
0626	1970	FORD	302	3.73	29.5	607.0	3.80	1.64	5.44	4.47	0.08	13.3
0627	1968	PONT	350	4.13	65.4	593.5	4.67	3.60	8.27	6.71	4.50	12.5
0627R	1968	PONT	350	3.77	61.4	565.0	5.37	2.65	8.03	6.41	4.72	13.1
0628	1970	CHEV	307	4.32	40.5	522.1	5.19	2.68	7.87	6.29	0.85	14.8
0628R	1970	CHEV	307	3.66	35.1	501.7	4.29	2.77	7.06	5.64	0.78	15.6
0629	1970	OLDS	455	5.93	84.3	672.9	5.07	2.59	7.65	5.96	6.54	10.8
0630	1967	CHRY	383	4.97	63.8	650.6	2.67	0.60	3.27	2.55	4.10	11.6
0631	1969	CHEV	230	9.91	35.1	469.1	3.12	1.04	4.16	3.58	2.66	16.0
0632	1968	AMC	343	6.35	107.7	450.6	1.61	0.20	1.81	2.37	4.72	13.9
0633	1967	CHEV	327	16.85	172.8	401.7	2.09	0.35	2.44	2.03	3.32	12.2
0634	1970	DODG	318	7.38	58.9	577.4	4.83	1.81	6.63	5.53	1.50	12.8
0635	1966	FORD	390	35.82	68.9	530.6	5.30	2.84	8.14	7.49	0.60	11.8
0636	1966	FORD	289	8.82	120.6	523.6	3.41	1.30	4.71	3.98	0.96	12.0
0636R	1966	FORD	289	7.72	94.9	479.0	3.29	0.95	4.24	3.43	0.80	13.6
0637	1967	MERC	390	7.96	81.0	625.8	7.26	4.27	11.53	9.61	3.02	11.4
0638	1966	MERC	390	32.59	66.2	565.9	3.93	2.40	6.33	5.02	0.20	11.5
0639	1971	PLYM	318	3.46	57.2	500.3	3.35	1.79	5.13	4.10	4.80	14.8
0640	1966	VOLK	78	6.06	87.4	282.5	1.84	0.39	2.22	1.78	7.80	20.2
0641	1972	PONT	350	4.31	60.6	589.4	2.74	0.87	3.61	2.97	2.46	12.7
0642	1967	CHEV	283	5.56	65.0	475.5	3.62	1.09	4.70	3.81	0.60	14.9
0643	1969	PONT	400	3.58	40.9	561.0	4.41	1.80	6.21	5.11	1.13	13.9

TABLE 13A, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1972 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0644	1971	MERC	400	9.40	57.3	597.7	3.55	1.18	4.73	3.83	1.50	12.4
0645	1966	OLDS	330	12.49	78.9	490.4	4.59	1.95	6.54	5.54	4.72	13.6
0646	1968	FORD	289	4.42	63.0	464.8	2.45	0.64	3.09	2.66	2.86	15.4
0648	1966	BUIC	340	8.54	151.2	414.2	1.96	0.33	2.30	2.17	7.23	13.1
0649	1972	CHEV	140	2.55	53.9	354.7	2.77	0.80	3.56	3.28	7.80	19.8
0650	1972	DATS	97	3.30	31.2	324.4	3.29	1.26	4.55	4.19	3.42	23.1
0651	1970	TOYO	116	1.77	21.7	327.8	2.71	0.74	3.45	3.19	0.20	24.2
0652	1971	CHEV	400	3.28	49.0	610.0	3.55	0.99	4.54	4.23	1.45	12.7
0653	1972	CHEV	350	4.09	75.9	576.4	2.46	0.43	2.90	2.75	5.70	12.5
0654	1968	FORD	429	6.20	168.1	647.5	2.69	0.45	3.14	2.99	6.50	9.5
0655	1966	CHEV	283	9.63	144.7	424.3	1.43	0.23	1.66	1.35	4.80	13.0
0656	1967	CHEV	194	6.14	85.0	357.9	2.66	0.45	3.11	3.02	8.10	17.4
0657	1972	FORD	429	2.96	25.5	703.6	5.54	1.70	7.24	6.27	1.54	11.8
0658	1969	CHEV	350	7.39	129.6	493.8	3.13	0.64	3.77	3.79	4.62	12.3
0659	1969	PLYM	318	3.19	27.5	555.3	4.94	2.37	7.31	7.37	0.75	14.6
0660	1967	CHEV	283	8.67	88.0	448.3	2.66	0.86	3.53	3.48	1.50	14.5
0661	1972	CHEV	350	3.28	74.3	675.5	2.75	0.43	3.17	3.25	3.40	11.1
0662	1967	FORD	289	12.92	97.4	476.2	1.90	0.47	2.37	2.42	4.42	13.2
0664	1972	PONT	455	2.83	41.3	894.1	4.79	1.20	5.99	6.18	3.12	9.2
0665	1966	AMC	232	9.46	205.6	335.2	1.22	0.08	1.30	1.23	2.68	12.9
0666	1966	DODG	361	3.98	57.4	304.9	1.48	0.20	1.68	1.60	2.61	21.8
0667	1971	FORD	429	3.02	33.2	643.8	5.44	2.47	7.91	7.09	2.46	12.6
0668	1969	FORD	200	3.19	41.2	427.9	6.05	2.44	8.49	7.72	3.34	17.7
0669	1970	DODG	318	3.59	65.9	561.0	4.81	2.96	7.77	6.74	6.60	13.1
0670	1970	CHEV	230	2.76	41.4	352.0	1.99	0.61	2.59	2.30	2.95	20.8
0671	1972	PLYM	318	2.71	26.4	542.3	5.44	2.98	8.42	6.91	1.50	15.0
0672	1970	AMC	304	3.17	60.2	540.7	2.66	0.68	3.35	2.79	5.70	13.8
0673	1967	DODG	318	3.92	21.4	556.0	4.20	2.74	6.95	5.66	0.12	14.7
0674	1967	AMC	290	6.86	129.9	473.8	2.26	0.44	2.70	2.17	4.30	12.7
0675	1971	DATS	97	2.39	11.1	348.1	3.77	2.11	5.89	5.21	0.33	23.8

TABLE 13B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0001	1969	CADI	472	5.21	115.0	653.4	3.49	0.88	4.38	3.53	3.57	10.4
0002	1970	CHEV	307	5.32	46.0	456.8	4.05	0.89	4.94	4.43	3.10	16.3
0003	1970	CHEV	350	5.43	94.7	489.2	3.48	0.70	4.17	3.74	6.10	13.5
0004	1969	FORD	390	5.95	106.9	502.3	2.59	0.38	2.97	2.47	3.57	12.9
0005	1972	OLDS	350	4.77	77.2	646.9	3.51	0.81	4.32	3.84	1.27	11.3
0006	1969	OLDS	350	6.24	85.7	501.7	2.59	0.64	3.22	2.97	7.08	13.5
0007	1970	FORD	351	4.07	72.2	534.8	2.55	0.34	2.89	2.66	3.82	13.4
0010	1968	CHEV	230	7.63	62.6	418.6	3.17	0.74	3.90	3.50	7.04	16.4
0012	1970	FORD	200	3.47	51.8	378.3	2.63	0.43	3.06	2.61	3.40	18.9
0013	1970	VOLK	97	3.90	77.1	324.1	2.61	0.40	3.01	2.54	4.30	19.4
0014	1966	FORD	352	7.97	104.1	505.4	4.08	1.00	5.09	4.34	5.30	12.8
0015	1969	PLYM	318	7.12	170.3	408.0	0.92	0.06	0.99	0.86	3.30	12.7
0016	1970	PONT	350	7.07	131.8	542.9	2.92	1.02	3.94	3.67	7.23	11.5
0017	1969	FORD	302	6.74	85.3	420.5	2.54	0.47	3.01	2.78	6.67	15.4
0018	1968	BUIC	430	9.39	116.0	544.9	4.95	1.72	6.66	6.02	7.23	11.7
0020	1972	FORD	200	3.45	40.8	382.4	3.44	1.10	4.55	4.21	2.88	19.4
0021	1970	FORD	351	8.01	129.5	521.9	3.25	0.54	3.79	3.38	5.20	11.8
0022	1969	CHEV	350	6.11	114.6	507.0	2.80	0.51	3.31	2.98	6.70	12.6
0024	1971	CHEV	400	6.27	156.4	720.9	1.82	0.12	1.94	1.73	1.86	9.0
0026	1968	PONT	350	4.21	38.5	560.4	3.02	0.71	3.73	3.72	1.95	14.0
0027	1971	VOLK	97	3.60	59.7	287.5	1.42	0.12	1.54	1.40	2.56	22.6
0028	1970	BUIC	455	6.12	122.5	593.2	2.26	0.26	2.53	2.28	4.87	11.0
0029	1971	CHEV	307	6.49	65.1	456.8	1.92	0.21	2.13	2.05	8.92	15.3
0030	1972	FORD	429	5.32	100.4	650.6	3.26	0.68	3.94	3.67	5.91	10.8
0031	1966	BUIC	425	12.51	230.4	457.2	1.46	0.12	1.58	1.31	5.20	10.3
0033	1966	CHEV	283	8.03	112.4	490.7	2.26	0.34	2.59	2.17	2.46	12.8
0034	1970	TOYO	71	5.17	74.4	466.1	3.77	0.89	4.66	4.05	1.80	14.8
0035	1967	FORD	289	7.58	91.8	450.9	3.85	0.84	4.69	4.10	5.10	14.3
0038	1970	CHEV	350	5.87	91.0	510.8	2.85	0.73	3.58	3.12	7.42	13.2
0039	1971	CHEV	350	5.46	121.6	539.7	1.52	0.17	1.69	1.39	6.48	11.9

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0041	1970	PLYM	318	4.84	82.3	562.6	3.91	1.00	4.91	4.20	2.60	12.5
0042	1971	VOLK	97	3.48	23.4	380.7	3.40	0.63	4.03	3.52	0.20	20.7
0043	1971	FORD	351	4.67	53.4	542.5	4.30	1.02	5.32	4.54	3.50	13.8
0044	1966	FORD	289	14.19	99.7	494.1	2.15	0.33	2.49	2.13	0.25	12.8
0045	1966	CHEV	283	7.08	70.5	538.2	4.94	1.59	6.54	5.80	1.86	13.2
0046	1970	VOLK	97	5.14	94.2	321.2	1.81	0.20	2.02	1.62	3.34	18.3
0048	1967	FORD	390	11.97	154.5	577.9	3.45	1.01	4.46	3.82	0.50	10.3
0049	1971	CHEV	400	5.32	68.1	617.1	6.10	1.80	7.90	6.66	2.00	12.0
0051	1971	DATS	97	3.19	58.9	291.6	2.03	0.28	2.31	1.96	2.30	22.5
0052	1970	OLDS	350	6.40	137.0	571.5	2.43	0.44	2.86	2.53	4.40	11.0
0052R	1970	OLDS	350	5.86	117.6	557.8	2.53	0.37	2.90	2.49	3.80	11.6
0054	1968	PLYM	318	6.00	113.7	506.0	2.57	0.37	2.94	2.50	3.70	12.6
0056	1971	TOYO	71	4.01	52.3	289.9	2.19	0.27	2.46	2.09	2.40	23.1
0057	1968	FORD	390	6.89	101.8	585.9	2.54	0.31	2.85	2.41	2.90	11.6
0062	1969	BUIC	350	6.23	161.8	523.5	2.58	0.59	3.18	2.76	2.00	11.1
0063	1971	DODG	225	4.76	81.9	403.7	2.75	0.44	3.19	2.72	1.20	16.2
0065	1969	PONT	350	4.65	45.4	544.9	4.84	1.32	6.16	5.24	1.70	14.1
0066	1969	FORD	351	6.82	77.5	459.8	4.04	0.93	4.97	4.10	7.60	14.7
0068	1969	PONT	400	5.81	100.2	543.5	3.70	0.66	4.36	3.71	2.60	12.3
0069	1971	PLYM	318	4.35	68.5	446.2	2.67	0.33	3.00	2.54	5.10	15.6
0070	1966	VOLK	78	5.83	97.2	202.5	0.75	0.04	0.79	0.67	2.35	23.8
0071	1972	CADI	472	2.73	124.3	868.4	1.83	0.16	1.99	1.67	1.60	8.3
0072	1966	CADI	429	5.85	103.5	635.1	4.66	1.11	5.77	4.90	0.50	10.9
0073	1969	VOLK	91	5.18	81.2	237.3	1.46	0.13	1.59	1.39	7.40	23.3
0075	1968	FORD	289	4.61	41.7	475.5	3.32	0.59	3.90	3.28	1.99	16.0
0076	1968	CADI	472	4.21	83.8	742.5	4.61	1.22	5.83	4.93	1.60	10.0
0077	1968	CHEV	327	5.19	88.6	625.1	2.52	0.44	2.97	2.52	5.00	11.4
0077R	1968	CHEV	327	5.43	95.7	579.1	2.19	0.26	2.45	2.03	5.70	11.8
0078	1967	PLYM	318	18.14	242.7	371.5	0.78	0.10	0.88	0.74	5.50	13.7
0078R	1967	PLYM	318	17.46	234.9	374.0	0.72	0.06	0.78	0.65	5.10	11.1

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0079	1966	PONT	326	6.69	77.0	503.7	3.67	0.90	4.57	3.88	5.40	13.7
0080	1967	VOLK	91	20.03	158.4	210.4	1.00	0.10	1.09	0.92	10.40	17.0
0081	1972	CHRY	400	5.52	130.2	578.0	2.16	0.28	2.44	2.03	1.20	11.1
0082	1966	PONT	389	6.59	111.4	513.9	2.04	0.18	2.22	1.87	2.20	12.5
0083	1968	PONT	400	3.95	38.6	612.5	3.55	0.69	4.23	3.57	0.09	12.9
0084	1972	VOLK	97	5.49	76.4	303.8	1.60	0.18	1.77	1.51	4.70	20.1
0086	1970	BUIC	350	5.83	166.3	452.5	1.19	0.06	1.25	1.04	7.42	12.1
0087	1971	MERC	351	4.66	71.8	607.8	3.40	0.67	4.07	3.36	1.75	12.1
0089	1969	FORD	302	8.12	116.2	472.4	2.66	0.42	3.07	2.51	5.30	13.0
0091	1970	FORD	302	7.05	77.2	526.2	4.63	0.93	5.56	4.66	5.50	13.2
0092	1971	CHEV	350	3.94	99.4	592.5	2.06	0.23	2.28	1.96	4.50	11.7
0094	1972	CHEV	400	16.84	108.3	650.1	1.90	0.37	2.28	1.91	4.50	10.2
0095	1969	CHEV	350	8.68	162.3	483.5	2.17	0.24	2.40	2.02	8.90	11.6
0096	1971	OLDS	350	5.70	84.7	575.5	2.82	0.41	3.23	2.73	2.70	12.2
0098	1972	MERC	351	4.25	98.7	549.8	2.76	0.57	3.33	3.17	2.77	12.4
0100	1972	BUIC	455	3.60	67.4	783.9	4.45	1.60	6.05	4.96	4.48	9.8
0102	1972	FORD	351	4.34	55.8	571.6	3.33	0.94	4.27	4.04	3.57	13.2
0103	1970	FORD	250	3.39	42.1	395.9	3.07	0.48	3.55	3.00	4.40	18.8
0105	1970	DODG	318	4.76	73.7	494.0	3.43	0.70	4.14	3.48	5.90	14.2
0107	1971	BUIC	350	4.07	92.9	500.0	1.66	0.16	1.83	1.53	5.40	13.5
0108	1970	DODG	383	5.48	103.6	549.7	4.16	1.16	5.32	4.42	5.50	12.2
0109	1971	OPEL	116	2.72	47.5	322.9	2.36	0.27	2.63	2.20	5.90	21.8
0110	1972	OLDS	455	4.03	36.2	676.0	3.54	1.54	5.08	4.99	0.94	11.9
0111	1969	BUIC	430	6.18	115.9	420.4	1.93	0.23	2.16	1.84	2.10	14.3
0112	1972	AMC	258	2.66	56.4	418.3	1.99	0.21	2.21	2.09	1.70	17.2
0113	1970	PLYM	225	4.60	82.4	332.5	2.66	0.44	3.10	2.63	0.94	18.6
0114	1972	PLYM	318	6.95	119.8	507.8	2.69	0.50	3.19	2.96	8.10	12.4
0116	1971	FORD	429	5.33	74.8	665.1	4.74	1.24	5.98	5.10	5.20	11.1
0117	1967	CHRY	383	9.78	241.9	537.6	1.09	0.09	1.18	1.00	1.20	9.4
0118	1971	FORD	302	4.81	55.7	534.3	2.86	0.52	3.38	3.27	1.77	13.9

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0119	1967	FORD	289	12.01	169.6	363.6	1.26	0.14	1.40	1.29	8.92	13.3
0120	1972	FORD	122	5.85	74.9	301.6	1.67	0.16	1.84	1.71	1.40	20.3
0121	1971	CHEV	350	4.46	35.3	646.5	3.50	0.62	4.12	3.41	0.60	12.4
0123	1972	FORD	400	4.38	83.6	686.3	5.62	1.90	7.52	6.27	7.40	10.7
0124	1966	AMC	232	7.56	166.1	344.7	1.11	0.16	1.27	1.08	7.23	14.1
0125	1968	CHRY	440	12.24	156.5	573.1	2.27	0.23	2.51	2.11	3.80	10.3
0126	1968	VOLK	91	6.32	70.0	246.4	1.91	0.15	2.06	1.71	1.30	23.6
0127	1971	CHEV	140	4.29	79.2	321.1	1.97	0.25	2.23	2.06	6.86	19.3
0128	1972	CHEV	307	4.30	36.3	620.3	3.04	0.79	3.83	3.60	0.29	12.8
0129	1967	CHEV	283	9.12	140.6	396.8	1.48	0.19	1.67	1.35	6.10	13.7
0130	1970	MERC	429	10.87	73.5	664.3	3.37	0.57	3.94	3.23	3.20	10.9
0131	1967	PONT	400	9.83	124.4	466.7	3.54	0.78	4.32	3.36	7.40	12.8
0132	1972	CHEV	350	2.62	37.2	521.7	1.66	0.25	1.90	1.77	1.52	15.1
0133	1968	FORD	428	9.78	168.2	597.3	4.47	0.84	5.31	4.25	9.47	9.9
0134	1969	CHEV	230	7.28	91.0	299.9	1.20	0.14	1.34	1.06	6.40	19.0
0135	1971	BUIC	455	5.13	89.0	663.7	3.38	0.65	4.04	3.24	5.20	10.8
0136	1972	FORD	302	4.38	78.7	568.7	2.37	0.30	2.67	2.07	4.40	12.6
0136R	1972	FORD	302	4.44	80.5	592.2	2.30	0.50	2.80	2.33	4.61	12.1
0137	1969	OLDS	455	4.97	137.8	739.3	2.15	0.27	2.42	1.93	5.10	9.1
0138	1968	AMC	343	6.01	103.0	406.7	1.52	0.17	1.69	1.52	1.35	15.1
0139	1972	PONT	350	5.86	125.4	608.5	1.88	0.21	2.10	1.67	5.40	10.8
0140	1966	CHEV	283	32.25	131.7	306.8	0.89	0.10	0.99	0.79	1.10	14.4
0141	1972	VOLK	97	2.35	32.0	365.6	4.95	1.78	6.73	5.38	3.80	21.0
0142	1967	OLDS	330	37.66	217.5	435.2	0.95	0.09	1.05	0.83	5.30	9.9
0143	1968	FORD	170	3.89	88.1	356.0	1.47	0.22	1.69	1.35	1.01	17.5
0144	1972	CHEV	350	3.84	59.1	601.3	2.12	0.38	2.50	2.26	0.50	12.6
0145	1972	CHEV	140	3.39	54.1	399.2	0.78	0.09	0.87	0.79	0.94	17.9
0146	1972	BUIC	350	4.77	78.5	683.8	3.32	0.53	3.85	3.13	1.70	10.8
0147	1967	MERC	390	6.48	94.1	481.3	3.16	0.51	3.67	2.92	5.00	13.7
0148	1966	OLDS	330	5.84	65.9	510.7	2.52	0.56	3.08	2.78	0.87	14.0

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0149	1971	FORD	170	6.21	82.4	311.2	1.65	0.28	1.94	1.53	6.43	19.3
0150	1970	CHEV	400	5.78	91.6	530.9	2.81	0.88	3.69	3.49	4.08	12.8
0151	1968	CHEV	307	6.07	56.8	522.2	4.36	1.11	5.46	4.31	0.16	14.1
0152	1972	PLYM	360	5.72	120.3	619.3	5.02	1.38	6.39	5.14	4.80	10.7
0152R	1972	PLYM	360	6.31	131.4	609.6	4.70	1.76	6.46	5.17	4.80	10.6
0153	1968	FORD	289	5.75	94.5	468.1	2.59	0.39	2.97	2.38	6.20	14.0
0154	1972	DODG	360	5.52	148.7	502.7	3.14	0.63	3.76	3.03	7.70	11.8
0155	1968	OLDS	350	5.25	82.0	537.7	2.83	0.48	3.30	2.64	5.90	13.0
0156	1969	MERC	390	6.67	52.7	608.1	5.66	2.66	8.32	6.78	0.14	12.5
0157	1967	PONT	326	8.41	119.6	477.0	1.46	0.15	1.62	1.36	0.79	12.8
0158	1970	PONT	400	5.74	74.4	707.5	5.52	1.96	7.47	6.82	5.62	10.5
0159	1972	FORD	351	5.91	115.7	715.0	2.78	0.70	3.48	3.33	0.29	9.7
0160	1971	PLYM	198	11.67	155.7	297.4	1.34	0.16	1.50	1.21	10.00	15.3
0160R	1971	PLYM	198	11.09	148.0	308.4	1.39	0.15	1.54	1.29	9.00	15.4
0161	1970	OLDS	455	6.72	129.4	629.5	2.80	0.54	3.35	2.71	9.80	10.4
0163	1970	CHEV	250	3.53	55.9	410.4	3.15	0.73	3.88	3.12	6.80	17.4
0163R	1970	CHEV	250	3.65	54.3	409.6	3.28	0.70	3.98	3.23	8.10	17.5
0164	1968	MERC	302	5.02	57.3	630.8	2.07	0.31	2.39	2.27	2.25	13.8
0165	1972	CHEV	350	4.74	111.1	597.8	1.98	0.28	2.25	2.16	8.64	11.3
0166	1971	DODG	383	9.07	188.2	559.8	1.32	0.10	1.42	1.46	6.65	10.0
0166R	1971	DODG	383	9.21	186.2	575.5	1.36	0.08	1.44	1.23	6.70	9.8
0167	1971	FORD	98	4.21	55.8	243.6	2.30	0.34	2.64	2.22	6.80	25.8
0168	1969	CHEV	307	5.71	64.2	411.3	2.96	0.43	3.38	2.83	2.60	16.7
0169	1972	CHEV	454	2.38	64.4	775.6	1.98	0.19	2.17	1.78	5.30	10.0
0170	1968	DODG	318	7.67	128.3	507.9	2.10	0.57	2.67	2.19	1.20	12.1
0171	1971	FORD	351	4.56	41.9	544.4	4.02	1.08	5.09	4.13	3.30	14.2
0172	1968	CHEV	307	20.09	343.1	435.6	1.22	0.25	1.47	1.24	6.30	8.5
0173	1966	FORD	200	6.58	60.5	348.7	2.70	0.91	3.61	3.02	3.50	19.1
0174	1969	DODG	383	5.40	111.6	646.1	2.89	0.36	3.26	2.63	3.50	10.6
0175	1970	FORD	302	5.12	44.5	442.1	2.68	0.40	3.08	2.62	0.19	16.8

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

DENVER

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0176	1969	CHEV	307	4.33	45.3	412.6	2.38	0.36	2.74	2.33	2.20	17.8
0176R	1969	CHEV	307	4.22	43.5	418.5	2.45	0.83	3.28	2.69	0.43	17.7
0177	1971	PONT	350	6.57	119.5	650.7	1.87	0.19	2.06	1.93	5.72	10.3
0178	1972	DATS	97	3.64	28.0	310.5	2.06	0.39	2.44	2.06	5.40	24.3
0179	1970	CHRY	440	4.53	73.0	675.0	4.25	0.92	5.16	4.32	3.50	11.0
0180	1967	CHEV	283	36.21	163.6	382.2	1.26	0.14	1.40	1.16	7.50	11.8
0181	1968	CHEV	396	5.22	104.3	540.7	2.01	0.20	2.21	1.85	0.25	12.3
0182	1967	CHEV	230	6.39	129.3	322.8	1.69	0.46	2.16	1.80	7.60	16.2
0183	1967	AMC	232	4.95	88.7	319.4	1.93	0.61	2.54	2.12	6.00	18.7
0184	1966	PLYM	225	6.60	200.3	295.2	0.35	0.03	0.38	0.32	5.30	14.1
0185	1967	BUIC	300	8.63	118.9	403.0	1.98	0.26	2.25	1.90	7.20	14.4
0186	1972	BUIC	455	2.79	55.6	687.0	4.56	1.51	6.07	5.85	0.12	11.4
0187	1967	CHEV	283	11.81	216.6	440.8	0.77	0.04	0.82	0.88	5.90	10.8
0188	1972	PONT	400	4.22	50.4	651.9	2.76	0.91	3.66	3.45	2.84	11.9
0189	1971	LINC	460	5.85	94.4	608.1	3.60	1.03	4.62	4.65	6.23	11.5
0190	1967	CHEV	283	20.23	133.5	408.1	1.61	0.24	1.85	1.93	6.39	13.0
0191	1966	DODG	383	5.63	86.0	577.2	1.54	0.15	1.69	1.72	0.50	12.2
0192	1966	MERC	390	16.16	228.6	508.5	1.17	0.13	1.30	1.28	9.05	9.7
0193	1971	OLDS	455	5.90	48.0	687.9	3.03	0.82	3.86	3.89	1.89	11.3
0194	1969	PLYM	225	2.91	37.6	347.8	4.30	1.45	5.75	5.70	7.52	21.3
0195	1972	TOYO	[illegible]	4.63	79.2	278.6	1.39	0.15	1.54	1.53	2.84	21.2
0196	1971	PONT	455	4.96	83.9	533.9	1.50	0.25	1.75	1.72	5.59	13.0
0197	1972	PLYM	360	6.51	110.8	584.0	3.21	0.88	4.09	3.81	2.16	11.4
0197R	1972	PLYM	360	5.72	82.5	606.4	3.63	0.82	4.45	4.12	2.20	11.7
0198	1972	DODG	225	4.15	83.2	377.2	2.85	0.62	3.47	3.28	6.79	17.0
0199	1969	FORD	200	5.09	74.3	344.4	2.03	0.21	2.24	1.96	7.12	18.6
0200	1966	CHEV	250	10.84	155.2	271.3	0.96	0.09	1.05	1.10	5.92	16.2
0201	1967	DODG	225	11.32	229.9	281.1	0.27	0.04	0.31	0.33	7.20	13.1
0202	1970	AMC	390	5.79	70.9	505.0	3.14	0.63	3.77	3.39	3.56	14.0
0203	1972	CHEV	350	4.29	93.4	533.1	2.58	0.40	2.99	2.64	7.36	12.8

TABLE 13B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0301	1966	FORD	390	6.77	65.8	543.0	3.21	1.51	4.73	4.17	3.93	13.3
0302	1972	CHEV	350	2.48	46.3	776.6	3.06	1.15	4.21	3.72	0.12	10.4
0303	1970	CHEV	350	4.16	131.8	612.2	2.08	0.33	2.41	2.09	7.89	10.7
0304	1970	OLDS	455	11.88	170.4	621.7	1.71	0.39	2.10	1.83	7.62	9.6
0305	1971	CHEV	350	2.45	55.2	532.4	5.09	0.52	5.60	4.83	0.10	14.2
0306	1966	CHEV	283	8.35	103.9	452.2	1.90	0.65	2.55	2.33	2.62	13.8
0307	1971	FORD	429	5.50	86.7	555.5	2.18	0.57	2.75	2.43	5.40	12.5
0308	1972	OLDS	350	3.46	58.6	631.7	3.15	1.48	4.63	4.18	0.41	12.1
0309	1971	CHEV	400	2.38	29.6	635.3	3.54	1.26	4.80	4.42	1.45	12.9
0310	1971	VOLK	97	2.48	41.9	304.8	1.86	0.32	2.17	2.03	1.53	23.4
0311	1968	AMC	290	5.11	57.6	512.5	3.13	1.57	4.70	4.00	8.73	14.3
0312	1972	CHEV	400	2.67	18.9	706.0	4.45	1.61	6.06	5.30	0.41	11.9
0313	1966	CHEV	283	8.69	120.0	449.5	3.42	0.99	4.42	3.73	6.86	13.3
0314	1972	FORD	400	26.28	56.6	571.6	4.85	1.86	6.72	5.72	2.00	11.9
0315	1966	PONT	389	5.28	55.9	526.5	4.22	1.80	6.01	5.36	1.60	14.1
0316	1970	VOLK	97	4.20	42.9	308.6	2.44	0.48	2.92	2.55	4.70	22.8
0317	1972	BUIC	455	1.86	15.9	767.6	5.48	2.48	7.96	7.21	0.93	11.1
0318	1969	CHEV	307	3.36	50.0	492.0	3.96	1.44	5.40	5.08	1.00	15.3
0319	1972	CHEV	350	2.51	31.0	620.3	3.05	0.73	3.78	3.50	1.37	13.1
0320	1966	CHEV	194	4.37	64.3	333.1	2.50	0.54	3.04	2.83	0.74	19.8
0322	1971	CHEV	350	4.06	55.3	599.9	4.88	1.69	6.57	5.88	1.06	12.7
0323	1968	CADI	472	3.61	72.8	665.2	4.13	1.63	5.76	5.25	0.56	11.2
0324	1966	PONT	326	7.06	66.2	456.5	4.39	1.80	6.19	5.86	2.40	15.2
0325	1969	CADI	472	3.66	57.8	668.5	4.86	2.48	7.35	7.06	0.65	11.5
0326	1972	TOYO	120	1.54	21.2	380.2	2.92	0.74	3.66	3.45	3.80	21.2
0327	1971	FORD	351	4.98	57.5	570.6	3.55	0.85	4.40	4.23	2.00	13.1
0328	1971	OLDS	455	3.39	58.8	665.3	4.80	2.24	7.05	6.72	5.00	11.6
0329	1969	FORD	200	2.62	18.4	471.1	4.16	2.12	6.28	5.89	0.59	17.5
0330	1969	OLDS	350	5.51	108.9	469.6	2.43	0.60	3.03	2.81	2.29	13.5
0330R	1969	OLDS	350	4.91	74.1	500.2	3.36	1.24	4.60	4.07	4.90	14.0

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0331	1971	BUIC	455	3.09	41.1	740.3	4.16	2.44	6.59	6.21	2.29	10.9
0331R	1971	BUIC	455	3.22	45.0	720.7	4.24	1.90	6.14	5.62	3.30	11.0
0332	1966	AMC	232	12.86	109.4	359.3	1.45	0.33	1.78	1.66	1.45	15.5
0333	1972	CADI	472	1.16	13.4	826.6	2.26	1.67	3.93	3.66	0.70	10.4
0334	1970	CHRY	440	3.79	51.5	671.7	3.74	1.24	4.99	4.72	1.86	11.6
0335	1967	VOLK	91	3.95	62.3	285.2	2.46	0.69	3.15	2.69	1.63	22.4
0336	1971	TOYO	71	5.56	19.5	345.1	3.43	0.81	4.24	4.51	2.07	22.6
0337	1970	FORD	351	24.66	102.4	451.7	4.60	2.05	6.65	5.94	4.00	12.8
0338	1969	CHEV	307	3.38	40.6	498.5	3.85	1.28	5.13	4.55	1.95	15.5
0339	1971	BUIC	350	3.48	85.1	656.2	3.39	1.84	5.23	4.67	5.00	11.1
0341	1972	OLDS	455	1.49	9.3	876.4	6.37	3.44	9.81	9.15	0.11	9.9
0342	1969	OLDS	455	4.09	85.1	594.1	4.38	1.95	6.32	5.86	1.73	12.0
0343	1970	CHEV	307	5.07	77.2	416.3	2.75	0.70	3.46	3.18	4.40	16.0
0344	1971	FORD	97	2.52	21.6	309.4	3.04	0.75	3.80	3.50	3.64	25.3
0346	1971	PLYM	318	2.46	28.4	563.5	4.20	1.50	5.69	5.25	0.79	14.4
0347	1969	PONT	350	4.28	68.9	510.8	5.44	2.49	7.93	6.93	1.60	14.0
0348	1967	PONT	400	7.10	72.3	490.8	6.11	2.44	8.55	7.57	7.60	14.2
0350	1972	FORD	351	2.80	34.1	645.1	3.75	0.98	4.73	3.90	3.15	12.5
0351	1968	CHEV	396	3.99	60.7	511.4	3.15	0.61	3.76	3.33	2.10	14.3
0353	1970	CHEV	350	4.67	91.0	509.5	2.46	0.49	2.95	2.43	3.54	13.3
0354	1972	PLYM	360	4.07	88.5	570.8	4.87	2.36	7.24	6.60	8.05	12.3
0355	1971	CHEV	350	3.89	20.6	611.7	4.59	1.87	6.46	6.12	1.95	13.5
0356	1972	PLYM	318	3.26	49.4	505.9	5.18	2.00	7.19	6.71	4.91	14.9
0357	1967	PLYM	318	4.16	40.0	466.8	4.48	1.71	6.20	5.70	1.19	16.4
0358	1972	PONT	400	1.75	11.8	638.5	2.74	0.92	3.66	3.47	0.46	13.4
0359	1972	FORD	302	2.53	40.1	623.7	2.25	0.45	2.70	2.56	2.14	12.8
0360	1968	OLDS	350	4.24	58.4	536.6	2.93	0.57	3.50	3.25	4.13	13.8
0361	1972	MERC	400	2.08	14.2	705.4	5.62	2.54	8.17	7.40	0.10	12.1
0362	1968	CHEV	307	6.33	54.1	463.2	4.14	2.21	6.35	5.93	6.09	15.6
0363	1972	AMC	258	0.93	7.8	394.1	1.44	0.32	1.75	1.67	0.17	21.7

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0364	1969	PLYM	318	5.13	66.1	538.2	3.86	2.63	6.48	6.65	2.68	13.5
0365	1972	CHRY	400	5.14	99.6	676.1	3.37	1.26	4.63	4.60	5.30	10.5
0366	1972	FORD	122	3.20	30.1	352.1	2.80	0.66	3.46	3.45	5.11	21.7
0367	1972	FORD	351	3.13	47.0	639.0	4.09	1.07	5.16	5.34	3.04	12.3
0368	1972	DODG	225	2.94	59.6	434.1	3.76	1.49	5.24	5.47	6.09	16.5
0369	1971	DODG	225	3.27	54.3	431.9	3.48	1.39	4.87	5.12	3.64	16.8
0370	1968	DODG	318	3.59	82.2	468.8	3.14	1.11	4.25	4.17	0.33	14.6
0371	1969	FORD	302	4.47	42.2	501.2	5.81	2.43	8.24	8.05	4.13	15.3
0372	1966	OLDS	330	10.14	133.2	514.7	3.28	0.71	3.99	3.82	7.50	11.7
0374	1968	FORD	289	5.41	74.4	491.6	2.38	0.76	3.14	2.82	3.23	14.2
0375	1970	MERC	429	5.20	44.4	786.7	6.91	3.57	10.48	9.46	0.28	10.2
0376	1972	DATS	97	1.86	19.6	336.2	2.89	0.74	3.63	3.52	5.30	23.8
0377	1967	CHEV	283	7.58	91.2	546.9	3.48	1.21	4.69	4.64	4.42	12.4
0378	1969	VOLK	91	4.39	38.9	382.7	2.91	0.65	3.57	3.63	4.81	22.3
0379	1972	FORD	302	3.02	29.0	585.8	2.62	0.51	3.12	3.11	2.06	13.8
0380	1967	CHEV	327	6.66	96.3	580.0	2.48	0.56	3.03	2.88	6.86	11.8
0381	1967	CHEV	283	12.14	103.1	485.8	2.16	0.52	2.68	2.62	3.05	12.9
0382	1968	CHEV	307	11.53	115.1	517.5	3.00	0.77	3.77	3.81	7.50	12.1
0383	1972	CHEV	140	2.73	47.6	443.2	1.92	0.28	2.20	2.20	1.40	16.9
0384	1970	PONT	400	4.07	60.6	682.1	4.00	1.10	5.09	5.22	5.50	11.2
0385	1968	MERC	302	3.45	11.9	635.6	3.69	1.01	4.70	5.20	0.39	13.3
0385R	1968	MERC	302	3.67	11.8	614.2	3.40	0.76	4.16	4.46	1.20	13.7
0386	1966	FORD	200	10.91	115.3	470.4	1.22	0.12	1.34	1.46	1.94	12.9
0387	1969	CHEV	350	6.61	86.3	608.4	3.39	0.92	4.31	4.57	9.10	11.6
0388	1966	VOLK	78	5.47	66.7	334.0	2.10	0.27	2.37	2.49	0.36	19.5
0389	1971	DODG	383	9.79	262.1	613.9	1.02	0.22	1.24	1.32	6.86	8.4
0390	1969	CHEV	350	3.38	51.8	536.5	2.21	0.55	2.76	2.99	5.21	14.1
0391	1971	FORD	302	2.81	32.2	648.8	1.57	0.50	2.07	2.15	2.10	12.5
0392	1972	VOLK	97	3.50	57.2	391.1	2.17	0.35	2.53	2.71	3.60	18.0
0393	1971	CHEV	307	4.43	87.9	535.8	3.47	1.01	4.48	4.88	5.79	12.9

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0393R	1971	CHEV	307	3.79	72.5	493.2	3.48	0.56	4.03	4.15	5.21	14.3
0394	1967	AMC	232	3.23	43.8	347.0	3.26	1.47	4.73	5.16	5.11	20.8
0395	1968	CHEV	327	28.62	74.9	497.8	2.19	0.57	2.76	2.61	2.00	12.6
0396	1971	OLDS	350	4.25	55.2	716.5	5.45	2.03	7.48	7.56	3.20	10.9
0397	1967	BUIC	300	7.40	139.3	513.9	2.38	0.41	2.79	2.84	6.50	11.7
0397R	1967	BUIC	300	7.60	150.3	519.2	2.48	0.29	2.77	3.03	6.40	11.3
0398	1972	BUIC	350	2.32	30.2	715.1	3.31	0.50	3.81	4.05	2.40	11.5
0399	1968	FORD	390	4.75	58.9	665.1	4.80	2.19	6.98	7.19	1.13	11.5
0400	1972	CHEV	350	3.21	67.8	653.2	2.43	0.58	3.02	3.21	7.31	11.5
0401	1970	FORD	302	2.81	52.7	538.3	2.38	0.66	3.04	3.26	3.10	14.1
0401R	1970	FORD	302	3.29	53.6	538.8	3.59	1.01	4.60	4.37	2.51	14.0
0402	1971	CHEV	402	3.37	65.8	670.9	2.80	0.91	3.71	3.88	6.55	11.3
0403	1970	PLYM	318	2.42	23.5	511.5	3.81	1.30	5.12	5.35	1.73	16.0
0404	1970	FORD	200	4.30	16.5	337.6	3.30	1.03	4.33	4.38	0.66	23.5
0405	1970	OLDS	350	3.15	34.1	540.8	2.48	0.70	3.18	3.15	3.71	14.7
0405R	1970	OLDS	350	3.29	33.2	509.3	2.99	0.67	3.66	3.48	3.93	15.5
0406	1969	PONT	400	3.62	63.0	608.4	2.26	0.58	2.84	2.99	1.82	12.3
0407	1966	BUIC	340	15.16	160.6	429.7	0.93	0.10	1.03	1.16	5.70	12.2
0408	1970	FORD	250	5.04	125.9	453.0	1.20	0.09	1.29	1.47	1.14	13.3
0409	1971	MERC	351	3.30	51.1	625.6	2.93	0.54	3.48	3.94	3.00	12.4
0410	1967	OLDS	330	6.71	84.6	506.6	2.23	0.32	2.55	2.74	0.63	13.4
0412	1968	BUIC	430	5.78	77.5	617.7	4.77	1.49	6.26	6.19	3.60	11.7
0413	1967	FORD	289	5.52	77.2	386.5	1.57	0.35	1.91	1.83	0.27	16.9
0414	1966	CADI	429	5.29	98.6	631.7	2.58	0.50	3.08	2.98	2.51	11.0
0414R	1966	CADI	429	5.41	98.8	666.9	2.87	0.69	3.56	3.33	2.35	10.5
0415	1969	FORD	302	5.15	41.6	455.1	5.43	2.18	7.61	7.31	4.32	16.5
0416	1971	FORD	351	4.61	67.9	599.8	5.70	1.99	7.70	7.10	5.30	12.3
0417	1969	PLYM	225	2.68	33.2	504.1	4.36	1.11	5.47	4.84	3.70	15.7
0418	1969	FORD	351	4.84	53.8	482.2	3.96	1.12	5.09	4.63	5.79	15.2
0419	1967	PONT	326	10.08	76.8	432.3	3.66	0.92	4.58	4.14	5.21	15.2

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0420	1970	FORD	351	3.72	47.6	516.0	5.65	2.17	7.82	7.08	2.91	14.7
0421	1972	CHEV	307	3.08	8.3	586.9	3.39	0.89	4.28	4.07	0.12	14.6
0422	1966	PLYM	225	3.31	39.2	396.3	3.21	0.75	3.96	3.80	0.14	18.9
0423	1971	PONT	455	2.26	17.7	771.2	4.64	2.15	6.78	6.71	0.18	11.0
0424	1969	BUIC	430	6.35	101.6	530.6	4.88	1.92	6.80	6.57	6.55	12.5
0425	1969	FORD	390	3.40	18.9	605.4	5.83	3.29	9.11	8.75	0.08	13.7
0426	1971	PONT	350	3.40	93.1	851.7	2.70	0.44	3.14	3.04	7.16	8.8
0427	1968	PONT	400	4.73	52.3	521.7	5.21	0.33	5.54	5.45	3.20	14.3
0428	1972	PONT	350	4.68	22.0	646.9	3.04	0.38	3.41	3.43	0.19	12.7
0428R	1972	PONT	350	4.73	21.6	638.0	2.87	0.41	3.28	3.78	0.55	12.9
0429	1968	FORD	289	3.16	24.3	492.4	5.10	0.47	5.57	5.72	5.11	16.4
0430	1966	FORD	289	14.25	141.6	383.6	1.51	0.19	1.70	1.88	0.84	13.6
0431	1970	BUIC	350	3.93	64.3	539.6	3.20	0.56	3.76	4.15	3.00	13.6
0432	1968	CHRY	383	10.38	118.7	521.4	2.96	0.53	3.49	3.90	3.10	12.0
0434	1969	CHEV	230	4.89	40.5	481.6	4.11	1.00	5.11	5.92	0.14	15.8
0435	1971	CHEV	140	3.67	51.8	268.7	1.28	0.14	1.42	1.68	7.62	24.5
0436	1972	CHEV	350	4.04	44.4	479.3	2.06	0.34	2.42	2.75	5.64	15.8
0437	1972	BUIC	455	2.05	17.4	727.8	4.40	1.97	6.36	6.94	1.82	11.7
0437R	1972	BUIC	455	2.07	20.3	715.6	4.61	1.47	6.09	6.98	1.40	11.7
0438	1970	PONT	350	2.25	33.7	611.7	2.50	0.36	2.86	3.09	2.24	13.2
0439	1966	MERC	390	7.11	134.5	629.4	1.97	0.40	2.37	2.60	2.62	10.3
0440	1967	DODG	225	3.19	56.7	363.3	3.00	0.70	3.70	4.07	4.60	19.2
0441	1966	CHEV	283	10.90	113.3	412.5	2.45	0.56	3.01	3.59	7.31	14.2
0442	1968	FORD	200	4.64	19.4	422.7	4.62	1.78	6.40	7.37	0.65	19.0
0443	1967	FORD	289	8.14	76.9	452.3	2.24	0.39	2.63	2.98	2.66	14.8
0444	1970	PLYM	225	3.63	42.0	346.8	2.37	0.43	2.80	3.12	5.40	20.9
0445	1971	FORD	200	2.06	11.8	385.2	2.38	0.40	2.78	3.06	0.41	21.6
0446	1967	FORD	390	6.26	191.1	434.3	0.76	0.04	0.80	0.89	4.13	11.8
0447	1967	CHRY	383	4.65	62.6	445.7	3.08	0.69	3.78	4.16	3.23	15.9
0448	1970	AMC	304	3.82	29.0	534.4	3.50	1.05	4.55	5.12	1.82	15.0

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

HOUSTON

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0449	1970	BUIC	455	6.55	77.1	627.7	3.85	0.89	4.74	5.74	3.50	11.5
0450	1969	BUIC	350	6.83	127.7	472.8	3.55	0.83	4.38	5.30	8.05	12.8
0451	1971	VOLK	97	4.16	53.5	329.6	2.42	0.30	2.71	3.12	8.28	20.8
0452	1970	VOLK	97	3.42	31.6	331.4	3.04	0.51	3.55	3.46	1.60	22.6
0453	1968	PONT	350	5.93	92.7	450.0	2.21	0.39	2.60	2.45	3.03	14.4
0454	1971	PLYM	198	3.90	44.2	399.0	4.41	0.95	5.36	4.75	5.40	18.5
0455	1972	FORD	429	3.43	46.8	673.2	4.87	1.78	6.65	5.64	3.20	11.7
0456	1970	DODG	318	3.08	15.7	536.4	5.05	1.46	6.51	5.62	0.30	15.5
0457	1970	TOYO	71	2.75	19.4	329.5	4.33	1.48	5.81	4.97	1.50	24.1
0458	1967	CHEV	283	37.07	109.4	423.6	3.16	0.90	4.06	3.45	6.40	12.4
0459	1968	PLYM	318	4.13	37.6	495.9	2.84	0.45	3.29	3.68	0.60	15.6
0460	1966	DODG	383	7.17	224.0	594.6	0.95	0.08	1.03	1.19	3.60	9.2
0461	1971	DATS	97	2.82	7.3	274.9	2.66	0.39	3.04	3.48	0.15	30.1
0462	1969	DODG	383	6.30	69.3	507.8	2.88	0.45	3.33	3.78	3.20	13.9
0463	1969	MERC	429	8.05	103.2	724.9	1.97	0.24	2.21	2.55	7.10	9.7
0464	1972	PLYM	360	4.40	74.1	601.8	4.08	1.08	5.16	6.08	3.90	12.1
0465	1971	LINC	460	3.92	67.4	690.2	4.60	0.84	5.44	6.42	6.40	11.0
0466	1972	VOLK	103	2.88	17.5	358.5	3.65	0.29	3.95	4.66	0.31	22.5
0467	1971	OPEL	116	3.02	41.8	389.0	3.22	0.59	3.81	4.84	6.55	19.1
0468	1968	CHEV	250	4.96	36.5	405.8	2.20	0.15	2.35	3.11	0.89	18.5
0469	1970	DODG	383	7.25	49.4	717.2	1.62	0.11	1.73	1.93	0.18	10.9
0470	1972	DODG	360	4.94	31.6	583.2	5.24	1.57	6.82	7.62	2.00	13.7
0471	1968	FORD	429	7.58	173.7	654.3	1.53	0.15	1.68	1.98	4.40	9.3
0472	1967	CHEV	194	6.85	83.4	406.4	2.46	0.33	2.80	3.45	2.90	15.9
0473	1970	FORD	351	4.61	56.2	529.8	4.02	0.89	4.91	5.91	4.60	14.0
0474	1968	VOLK	91	23.22	152.7	235.4	0.84	0.10	0.94	1.17	7.10	16.2
0475	1972	CHEV	402	1.82	41.1	635.3	4.04	3.88	7.92	7.25	0.60	12.6
0476	1970	CHEV	454	11.27	276.9	525.4	1.70	0.47	2.17	2.07	5.30	8.9
0477	1970	CHEV	250	5.95	22.5	437.7	4.60	1.87	6.47	6.12	0.60	18.0
0478	1967	MERC	289	6.93	79.7	499.3	4.05	1.16	5.21	4.78	0.60	13.7

TABLE 13B

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0501	1971	FORD	351	4.70	53.8	473.0	3.70	1.76	5.46	4.99	6.95	15.5
0502	1972	AMC	258	3.56	48.9	436.0	3.78	1.47	5.25	4.87	5.60	16.9
0503	1972	BUIC	455	2.14	27.8	797.2	4.07	2.00	6.07	5.99	1.88	10.5
0504	1972	FORD	351	4.62	70.1	707.3	3.37	1.14	4.52	4.26	3.40	10.7
0505	1971	FORD	302	3.16	47.9	571.1	2.81	0.80	3.61	3.26	3.60	13.5
0506	1971	DODG	225	3.01	62.8	370.1	3.16	0.92	4.08	3.68	5.90	18.6
0507	1971	FORD	351	3.19	44.3	532.3	4.24	1.75	5.99	5.16	4.12	14.5
0508	1971	FORD	200	2.44	19.6	373.2	3.42	1.79	5.21	4.54	1.97	21.6
0509	1971	VOLK	97	3.28	37.1	325.6	2.20	0.89	3.08	2.70	0.96	22.5
0510	1972	OLDS	455	1.64	8.4	738.2	3.99	1.93	5.92	5.13	0.22	11.7
0511	1972	FORD	351	2.09	15.7	647.3	4.18	1.43	5.60	4.82	0.26	13.1
0512	1970	OLDS	350	3.54	69.4	484.2	3.42	0.93	4.35	3.74	4.32	14.7
0513	1971	PONT	455	3.22	66.8	625.4	3.96	1.28	5.24	4.52	6.89	12.0
0514	1970	MERC	429	3.92	37.2	721.1	6.36	2.75	9.11	7.79	3.62	11.2
0515	1970	PONT	400	3.86	39.2	548.1	3.74	1.64	5.38	4.49	3.48	14.3
0516	1970	PLYM	318	4.67	63.3	493.0	4.55	2.83	7.38	6.11	7.00	14.6
0517	1972	CHEV	400	2.68	60.5	694.4	3.42	1.10	4.52	3.68	5.45	11.1
0518	1970	FORD	351	3.59	68.8	513.2	3.81	1.39	5.21	4.31	5.22	14.0
0519	1969	FORD	302	3.81	52.3	419.7	4.26	1.67	5.93	4.81	5.40	17.3
0520	1972	BUIC	455	1.89	21.7	727.9	5.34	2.59	7.93	6.39	2.40	11.6
0521	1967	VOLK	91	8.86	70.3	171.7	0.72	0.05	0.77	0.63	5.40	28.6
0522	1968	FORD	200	2.27	41.0	371.7	2.69	0.49	3.18	2.87	3.83	20.0
0523	1971	LINC	460	3.24	58.9	712.1	3.69	1.31	5.00	4.55	3.01	10.9
0524	1971	CHEV	350	2.87	43.2	542.5	2.88	1.62	4.51	4.09	2.83	14.3
0525	1969	OLDS	350	4.87	76.5	483.9	2.96	0.73	3.68	3.42	5.52	14.3
0526	1969	FORD	390	3.97	67.5	491.4	3.34	1.16	4.49	4.15	5.37	14.6
0527	1970	CHEV	350	3.44	40.9	462.8	4.31	1.65	5.97	5.55	3.74	16.5
0528	1966	FORD	200	23.50	43.1	344.7	3.54	1.47	5.02	4.64	5.38	18.2
0529	1967	PONT	400	5.38	68.3	516.1	3.74	1.55	5.29	4.89	6.80	13.9
0530	1972	VOLK	103	1.96	14.6	377.2	2.20	0.51	2.71	2.49	0.12	21.8

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0531	1970	BUIC	350	4.08	54.1	518.0	3.79	1.12	4.91	4.53	1.50	14.4
0532	1968	PLYM	273	3.35	37.8	441.4	4.40	1.34	5.75	5.48	1.05	17.4
0533	1969	BUIC	350	3.57	63.0	508.8	4.84	1.94	6.79	6.34	7.23	14.3
0534	1969	FORD	302	4.41	54.0	506.6	5.35	2.11	7.46	6.87	4.92	14.7
0535	1966	CHEV	194	3.79	67.0	356.4	1.82	0.25	2.06	1.93	4.00	18.7
0536	1972	PLYM	318	2.72	39.0	484.0	3.82	1.06	4.87	4.64	3.50	16.0
0537	1972	FORD	302	2.93	5.7	489.5	3.18	1.03	4.21	4.13	1.31	17.5
0538	1972	BUIC	350	2.78	45.9	614.2	3.43	1.07	4.50	4.33	2.50	12.8
0539	1971	DODG	383	5.28	112.2	534.2	2.97	0.87	3.83	3.76	7.23	12.2
0540	1972	CHEV	307	2.61	23.6	560.1	2.86	0.66	3.53	3.46	2.48	14.7
0541	1969	BUIC	430	5.52	82.6	527.0	4.46	1.85	6.31	6.11	7.23	13.2
0542	1972	VOLK	97	2.87	38.1	365.9	2.15	0.50	2.65	2.56	2.46	20.4
0543	1966	PONT	389	5.58	64.2	546.8	3.12	0.67	3.79	3.58	0.19	13.3
0544	1968	MERC	302	2.99	22.1	414.8	3.33	1.07	4.40	4.14	1.40	19.3
0545	1967	CHEV	283	9.04	119.1	432.3	2.00	0.42	2.42	2.28	5.85	13.7
0546	1967	PLYM	318	6.36	129.7	434.8	1.89	0.34	2.23	2.11	4.42	13.5
0547	1971	OLDS	350	2.83	39.3	568.1	3.84	0.90	4.74	4.47	2.12	13.9
0548	1972	OLDS	350	3.36	38.5	640.2	3.15	0.72	3.87	3.65	3.77	12.5
0549	1969	CHEV	327	10.54	187.8	443.6	1.23	0.15	1.38	1.30	6.00	11.5
0550	1972	CHRY	400	5.02	110.9	593.1	3.26	0.90	4.16	3.92	7.43	11.3
0551	1971	BUIC	350	5.36	67.1	554.9	1.87	0.33	2.20	2.17	5.32	13.1
0552	1972	TOYO	120	1.77	18.2	374.2	2.41	0.47	2.88	2.94	1.78	21.7
0553	1971	PLYM	198	3.08	66.2	334.6	2.31	0.42	2.74	2.73	3.82	19.8
0554	1971	OPEL	116	1.69	41.8	401.5	1.53	0.08	1.61	1.56	7.06	18.8
0555	1968	OLDS	350	4.83	72.8	537.2	2.48	0.35	2.83	2.89	5.22	13.3
0556	1970	BUIC	455	5.86	115.7	538.3	3.04	0.67	3.70	3.75	5.08	12.0
0557	1971	VOLK	97	2.98	37.2	288.1	1.87	0.17	2.04	2.03	1.11	24.9
0558	1970	CHEV	350	3.96	62.7	492.0	3.10	0.72	3.82	3.12	3.82	14.7
0559	1970	CHRY	440	3.77	23.3	602.3	4.75	0.51	5.25	5.01	0.15	13.6
0560	1972	PLYM	360	5.06	107.3	561.2	4.73	1.85	6.57	6.27	6.50	11.9

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0561	1970	CHEV	400	5.56	95.8	478.6	2.40	0.47	2.87	2.35	6.60	13.7
0562	1972	CADI	472	0.44	20.6	963.7	2.23	0.36	2.59	2.57	1.35	8.9
0563	1970	FORD	302	3.54	48.7	488.2	2.58	0.53	3.11	3.05	4.65	15.4
0564	1969	DODG	383	10.03	73.7	424.9	3.05	1.31	4.36	4.40	5.05	15.5
0565	1970	FORD	250	3.04	16.1	472.9	5.09	1.89	6.98	7.34	0.36	17.5
0567	1968	CHEV	164	7.37	91.6	338.0	1.86	0.28	2.14	2.18	7.79	17.6
0568	1968	BUIC	430	4.94	52.5	554.7	3.61	0.81	4.42	4.61	1.13	13.6
0569	1972	DODG	225	2.25	32.7	410.8	3.85	1.20	5.05	5.23	0.21	18.9
0570	1966	CADI	429	6.31	145.7	534.9	1.69	0.19	1.88	1.96	2.97	11.3
0571	1970	VOLK	97	3.35	41.4	310.5	2.41	0.55	2.96	2.57	5.50	23.0
0572	1970	PONT	350	3.41	60.6	618.4	2.93	0.58	3.52	3.02	5.10	12.3
0573	1966	CHEV	283	6.21	79.6	416.1	2.86	0.85	3.72	3.12	5.00	15.8
0574	1968	CHEV	327	6.77	53.0	433.4	3.41	1.48	4.89	4.20	5.38	16.5
0575	1970	FORD	200	2.68	40.4	347.7	2.31	0.36	2.68	2.34	0.91	21.1
0576	1968	CHRY	383	5.26	84.6	485.5	4.23	2.11	6.35	5.57	3.82	14.0
0577	1972	FORD	122	2.68	36.5	345.1	2.52	0.54	3.06	2.70	3.13	21.6
0578	1968	CHEV	396	7.56	78.5	366.8	1.34	0.14	1.48	1.29	2.78	17.3
0579	1969	VOLK	91	3.80	50.8	299.7	2.00	0.30	2.30	1.98	5.32	22.7
0580	1972	FORD	400	3.16	45.2	487.4	4.50	2.44	6.94	6.17	2.13	15.6
0581	1969	CHEV	350	5.66	104.8	495.1	3.50	1.10	4.60	3.97	4.72	13.1
0583	1969	FORD	351	2.93	15.8	559.1	5.04	3.61	8.64	7.09	0.56	15.0
0584	1971	CHEV	140	6.02	44.8	325.1	2.13	0.45	2.59	2.19	3.00	21.4
0585	1968	CHEV	307	4.76	38.3	536.9	6.06	4.14	10.19	8.56	3.50	14.5
0586	1970	FORD	351	3.24	26.5	597.4	5.08	2.84	7.92	6.59	0.22	13.7
0587	1971	FORD	98	5.78	86.1	268.6	1.57	0.19	1.75	1.47	3.60	21.0
0588	1972	DODG	360	3.58	51.6	662.6	5.65	2.33	7.98	6.45	2.20	11.8
0589	1968	DODG	318	4.27	62.0	453.7	4.65	1.62	6.27	5.01	3.12	15.7
0590	1971	BUIC	455	3.06	47.2	779.5	3.48	1.84	5.32	4.71	3.05	10.3
0591	1967	FORD	289	5.61	83.5	458.5	3.58	1.52	5.10	4.38	3.22	14.6
0592	1971	CHEV	350	2.33	15.4	600.3	4.13	1.82	5.95	5.11	0.10	14.0

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0592R	1971	CHEV	350	2.31	17.3	586.9	4.33	1.46	5.79	4.90	0.11	14.2
0593	1968	FORD	289	3.64	38.8	512.2	4.31	1.69	6.01	5.17	2.13	15.2
0594	1970	VOLK	97	2.60	38.6	343.8	2.88	0.80	3.68	3.12	2.66	21.5
0594R	1970	VOLK	97	2.53	38.2	330.7	3.01	0.62	3.63	3.07	2.76	22.2
0595	1969	CADI	472	2.67	45.1	697.5	5.32	3.04	8.36	7.18	2.00	11.4
0596	1968	CHEV	307	4.17	56.5	508.8	4.56	2.08	6.64	5.50	3.40	14.5
0597	1972	MERC	400	2.31	14.1	666.1	5.66	3.15	8.81	7.40	0.10	12.8
0598	1971	OLDS	455	3.95	98.9	656.5	4.24	1.95	6.20	5.13	7.26	10.8
0598R	1971	OLDS	455	3.70	92.0	658.5	4.35	2.31	6.66	5.54	7.10	10.8
0599	1972	CHEV	350	3.21	57.2	630.8	3.61	1.22	4.83	3.96	5.32	12.1
0599R	1972	CHEV	350	3.36	56.7	635.7	3.79	1.21	5.00	3.96	5.30	12.0
0600	1971	PONT	350	4.66	68.1	548.3	3.20	1.23	4.42	3.63	7.55	13.2
0601	1969	MERC	390	3.84	58.3	584.3	6.12	2.70	8.82	7.30	4.10	12.9
0602	1966	PONT	326	10.86	117.6	541.3	3.52	1.06	4.58	3.71	6.03	11.7
0603	1971	CHEV	307	9.67	48.1	481.3	3.42	1.12	4.54	3.70	1.33	15.1
0604	1971	TOYO	96	10.07	173.5	237.4	0.42	0.02	0.44	0.36	2.45	16.4
0605	1967	OLDS	330	3.44	26.7	523.7	3.45	1.00	4.45	3.75	0.42	15.4
0606	1969	CHEV	307	3.56	36.8	482.4	4.28	1.55	5.83	5.05	2.13	16.1
0607	1966	CHEV	283	7.99	54.4	490.2	3.68	1.40	5.08	4.32	0.10	14.8
0608	1971	CHEV	400	4.52	64.2	607.4	3.25	0.99	4.24	3.69	2.92	12.3
0609	1970	PLYM	225	3.00	53.3	394.8	4.68	1.94	6.61	5.59	0.80	18.2
0610	1968	CADI	472	3.45	20.1	717.1	6.26	3.58	9.84	8.48	0.17	11.7
0611	1968	VOLK	91	7.52	81.5	282.1	1.80	0.43	2.24	1.86	7.30	20.4
0612	1966	PLYM	225	2.79	28.0	374.7	4.47	2.18	6.65	5.54	1.33	20.8
0613	1969	PLYM	225	2.43	44.0	367.6	3.75	1.18	4.93	3.65	1.78	20.0
0613R	1969	PLYM	225	2.45	46.2	362.7	3.53	1.52	5.05	4.18	1.90	20.0
0614	1967	PONT	326	4.87	65.2	476.3	4.33	1.78	6.11	5.05	6.00	14.9
0615	1969	OLDS	455	4.46	49.9	616.6	5.69	2.55	8.24	6.86	1.40	12.5
0616	1967	BUIC	340	5.34	112.0	492.5	2.90	0.61	3.51	2.79	4.20	12.9
0617	1969	PONT	350	4.82	75.6	571.2	4.95	3.42	8.37	7.43	3.52	12.6

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0619	1968	FORD	390	17.84	60.6	476.5	3.90	1.86	5.76	4.94	4.22	14.1
0620	1972	CHEV	350	2.44	30.9	600.0	2.90	0.98	3.87	3.13	2.71	13.5
0621	1968	PONT	400	29.24	45.4	526.6	3.87	1.86	5.73	4.77	2.32	12.8
0622	1971	CHEV	350	3.82	39.9	533.5	4.10	1.86	5.97	4.83	2.09	14.6
0623	1967	FORD	390	6.36	77.1	558.1	5.02	2.72	7.73	6.54	5.50	12.7
0623R	1967	FORD	390	5.23	61.1	537.2	4.99	2.69	7.68	6.53	5.52	13.6
0624	1972	FORD	351	3.06	33.0	771.0	4.35	2.34	6.68	5.38	1.08	10.7
0624R	1972	FORD	351	3.11	36.3	755.5	4.37	2.15	6.52	5.14	0.65	10.7
0625	1972	CHEV	402	1.21	27.3	703.5	3.38	1.13	4.51	3.74	1.90	11.8
0626	1970	FORD	302	3.34	18.4	588.9	3.89	1.66	5.56	4.57	0.08	14.1
0627	1968	PONT	350	3.81	54.6	572.1	5.12	3.58	8.70	7.05	4.50	13.2
0627R	1968	PONT	350	3.55	52.2	546.1	5.25	3.01	8.26	6.60	4.72	13.8
0628	1970	CHEV	307	3.72	28.2	516.1	5.49	2.62	8.11	6.49	0.85	15.5
0628R	1970	CHEV	307	3.37	25.5	502.2	4.56	2.91	7.46	5.96	0.78	16.0
0629	1970	OLDS	455	5.66	80.7	643.0	5.09	2.51	7.60	5.92	6.54	11.3
0630	1967	CHRY	383	4.28	51.7	635.8	2.78	0.69	3.47	2.70	4.10	12.2
0631	1969	CHEV	230	9.41	31.5	464.2	3.25	1.02	4.27	3.67	2.66	16.3
0632	1968	AMC	343	5.76	94.8	447.1	1.94	0.30	2.24	2.94	4.72	14.4
0633	1967	CHEV	327	15.23	128.6	404.9	2.65	0.80	3.44	2.87	3.32	13.5
0634	1970	DODG	318	6.74	48.6	584.7	5.22	1.98	7.20	6.00	1.50	13.0
0635	1966	FORD	390	34.02	64.3	534.5	5.27	3.27	8.54	7.87	0.60	11.9
0636	1966	FORD	289	7.50	104.8	520.8	3.67	1.34	5.00	4.22	0.96	12.5
0636R	1966	FORD	289	6.68	78.9	479.3	3.44	1.11	4.56	3.69	0.80	14.2
0637	1967	MERC	390	7.26	66.7	619.4	7.55	4.73	12.29	10.24	3.02	11.9
0638	1966	MERC	390	31.01	58.3	562.0	3.93	2.47	6.41	5.08	0.20	11.8
0639	1971	PLYM	318	3.22	53.3	505.6	3.81	1.77	5.59	4.46	4.80	14.8
0640	1966	VOLK	78	5.73	84.4	274.5	1.74	0.29	2.03	1.62	7.80	20.9
0641	1972	PONT	350	4.06	56.5	583.4	3.01	0.89	3.90	3.21	2.46	13.0
0642	1967	CHEV	283	5.32	61.4	470.4	3.50	1.11	4.60	3.73	0.60	15.2
0643	1969	PONT	400	3.46	35.6	553.0	4.58	1.90	6.48	5.33	1.13	14.3

TABLE 13B, CONT'D

EXHAUST EMISSION TEST RESULTS IN GRAMS/MILE

CHICAGO

1975 FEDERAL TEST PROCEDURE

VEH#	YEAR	MAKE	CID	HC	CO	CO2	NO	NO2	NOX	NOXC	I.CO	FUEL ECON
0644	1971	MERC	400	6.29	50.7	581.2	3.55	1.20	4.75	3.85	1.50	13.0
0645	1966	OLDS	330	12.32	78.3	484.5	4.46	1.91	6.36	5.39	4.72	13.7
0646	1968	FORD	289	3.83	51.6	443.7	2.15	0.49	2.64	2.27	2.86	16.5
0648	1966	BUIC	340	7.68	124.1	407.4	2.12	0.45	2.57	2.42	7.23	14.2
0649	1972	CHEV	140	2.45	53.4	351.3	2.81	0.75	3.56	3.28	7.80	20.0
0650	1972	DATS	97	3.06	24.3	319.1	3.45	1.20	4.64	4.27	3.42	24.2
0651	1970	TOYO	116	1.69	20.5	321.4	2.79	0.63	3.42	3.16	0.20	24.7
0652	1971	CHEV	400	2.88	40.0	587.5	3.44	0.91	4.35	4.05	1.45	13.5
0653	1972	CHEV	350	3.62	74.2	568.8	2.47	0.37	2.84	2.70	5.70	12.7
0654	1968	FORD	429	5.57	148.8	628.3	2.84	0.53	3.37	3.20	6.50	10.1
0655	1966	CHEV	283	8.68	137.4	425.8	1.51	0.21	1.72	1.41	4.80	13.3
0656	1967	CHEV	194	5.77	81.6	350.4	2.62	0.53	3.14	3.05	8.10	17.9
0657	1972	FORD	429	2.94	23.9	685.9	5.33	1.77	7.09	6.14	1.54	12.1
0658	1969	CHEV	350	5.85	97.6	488.0	3.31	0.98	4.28	4.31	4.62	13.5
0659	1969	PLYM	318	3.02	22.8	556.9	5.32	2.36	7.68	7.73	0.75	14.7
0660	1967	CHEV	283	8.33	77.6	428.5	2.58	0.86	3.44	3.39	1.50	15.4
0661	1972	CHEV	350	3.15	75.6	651.1	2.64	0.40	3.05	3.12	3.40	11.4
0662	1967	FORD	289	12.09	94.6	470.1	1.91	0.40	2.31	2.36	4.42	13.5
0664	1972	PONT	455	2.56	37.2	860.9	4.79	1.46	6.25	6.45	3.12	9.6
0665	1966	AMC	232	9.17	207.6	320.5	0.98	0.05	1.03	0.98	2.68	13.1
0666	1966	DODG	361	3.67	62.5	298.2	1.39	0.15	1.54	1.46	2.61	21.8
0667	1971	FORD	429	2.99	34.0	632.6	5.62	2.37	7.99	7.17	2.46	12.8
0668	1969	FORD	200	3.05	36.6	419.8	5.89	2.63	8.52	7.75	3.34	18.2
0669	1970	DODG	318	3.44	60.0	539.2	4.80	3.04	7.84	6.80	6.60	13.8
0670	1970	CHEV	230	2.32	32.9	346.4	2.13	0.52	2.65	2.36	2.95	21.9
0671	1972	PLYM	318	2.61	24.4	536.1	5.45	3.08	8.53	7.00	1.50	15.2
0672	1970	AMC	304	2.73	48.4	534.6	2.87	0.83	3.69	3.07	5.70	14.3
0673	1967	DODG	318	3.76	17.3	540.6	4.43	2.44	6.87	5.60	0.12	15.3
0674	1967	AMC	290	5.78	113.7	464.0	2.42	0.51	2.93	2.35	4.30	13.4
0675	1971	DATS	97	2.15	10.6	346.0	4.06	2.19	6.25	5.53	0.33	24.0

TABLE 14

EVAPORATIVE EMISSIONS TEST RESULTS AND FUEL ANALYSIS

DENVER
SHED TEST PROCEDURE

	DIURNAL				HOT SOAK						DISTILLATION TEMPERATURES									
VEH#	TIME	ENCL TEMP	INT. TEMP	HC (GMS)	TIME	ENCL TEMP	INT. TEMP	HC (GMS)	RVP	H/C	IBP	5%	10%	15%	20%	30%	40%	50%	90%	FBP
0005	60	73.0	85.0	12.0	60	82.0	94.0	6.4	8.7	2.20	82.4	121	136	154	168	192	209	221	343	360
0020	60	76.0	84.0	22.9	60	83.0	84.0	11.8	8.4	2.23	82.4	122	138	156	170	193	208	221	347	356
0030	60	74.0	83.0	18.3	60	86.0	98.0	34.5	8.4	2.14	82.4	122	139	155	170	193	208	220	344	356
0098	60	73.0	81.0	15.9	60	83.0	90.0	31.4	9.7	2.21	82.4	114	127	136	147	174	192	211	313	342
0102	60	71.0	83.0	32.0	60	83.0	91.0	18.2	9.5	2.27	82.4	114	127	138	148	172	193	208	311	334
0110	60	71.0	85.0	9.9	60	87.0	95.0	20.1	9.4	2.24	77.0	116	129	142	161	178	201	217	316	327
0114	60	73.0	84.0	25.6	60	84.0	89.0	7.7	9.5	2.27	78.8	116	129	140	152	175	194	210	315	327
0120	60	73.0	86.0	13.1	60	79.0	90.0	10.5	9.2	2.26	79.7	118	135	144	154	177	197	212	314	330
0128	60	76.0	84.0	11.8	60	86.0	91.0	8.8	9.1	2.31	78.8	120	133	145	159	181	199	215	324	336
0132	60	72.0	83.0	0.6	60	82.0	89.0	6.3	8.7	2.39	78.8	122	135	149	161	184	201	216	320	331
0136	60	69.0	84.0	29.0	60	80.0	87.0	21.9	8.8	2.36	78.8	125	136	149	161	182	200	214	313	334
0136R	60	68.0	83.0	28.6	60	81.0	90.0	23.0	8.7	2.36	91.4	122	138	152	165	186	203	217	321	330
0144	60	70.0	83.0	29.6	60	81.0	90.0	11.4	9.0	2.38	77.0	120	134	149	162	185	201	216	317	329
0145	60	72.0	83.0	8.5	60	76.0	88.0	12.8	9.0	2.30	89.6	120	135	148	163	185	202	215	319	325
0146	60	72.0	84.0	34.6	60	86.0	91.0	16.4	8.5	2.36	85.8	120	136	148	161	183	201	214	318	331
0178	60	69.0	84.0	0.5	60	75.0	83.0	0.4	9.1	2.25	91.4	122	136	149	162	185	201	216	321	331
0186	60	77.0	85.0	25.4	60	83.0	103.0	23.8	8.2	2.25	102.2	129	141	153	165	187	204	217	311	317
0188	60	80.0	83.0	15.8	60	87.0	104.0	14.6	7.8	2.36	98.6	128	140	153	165	187	206	210	311	324
0195	60	75.0	85.0	3.9	60	86.0	93.0	10.0	8.4	2.17	89.6	127	141	154	167	189	205	221	324	324
0197	60	76.0	85.0	20.0	60	87.0	96.0	16.6	8.5	2.14	107.6	129	142	154	165	187	205	219	318	328
0197R	60	73.0	85.0	21.2	60	84.0	92.0	7.9	7.8	2.22	96.8	133	148	163	178	196	211	226	322	336
0198	60	77.0	84.0	19.6	60	83.0	93.0	1.0	7.7	2.19	89.6	131	148	162	174	201	213	225	320	333